

MAR/FY06

FORT CARSON
Colorado

**Army Defense Environmental
Restoration Program
Installation Action Plan**

Final 13 July 2006

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Statement of Purpose

The Fort Carson Installation Restoration Program (IRP) consists of both the Restoration Program, funded by ER,A and the Compliance Cleanup program, funded by OMA. The purpose of the Installation Action Plan (IAP) is to outline the total multi-year Cleanup Program for an installation. The plan identifies environmental cleanup requirements at each site or area of concern, and proposes a comprehensive, installation-wide approach, with associated costs and schedules, to conduct investigations, necessary remedial actions, and long term management.

In an effort to coordinate planning information between the IRP manager, major army commands (MACOMs), installations, executing agencies, and regulatory agencies, an IAP has been completed for Fort Carson. The IAP is used to track requirements, schedules and tentative budgets for all Army installation cleanup programs.

All site specific funding and schedule information has been prepared according to projected overall Army funding levels and is, therefore, subject to change during the document's annual review. Under current project funding, all remedies will be in place at Fort Carson by the end of 2014.

The following agencies contributed to the formulation and completion of this Restoration Installation Action Plan:

Company/Installation/Branch

Colorado Department of Public Health and Environment
Engineering & Environment, Inc. for USAEC
Fort Carson/CALIBRE/APLEN
Fort Carson IRP/Engineering & Environment, Inc.
Fort Carson IRP
Fort Carson RAB, Community Co-Chair
Fort Carson, SJA
Installation Management Agency – NW Regional Office
US Army Corps of Engineers, Omaha District
US Army Environmental Center
US Army Environmental Center, Western Region Office

Acronyms & Abbreviations

AEDB-R	Army Environmental Database - Restoration
AST	Aboveground Storage Tank
ATSDR	Agency for Toxic Substances and Disease Registry
COC	Contaminants of Concern
CRP	Community Relations Plan
CTC	Cost-to-Complete
cy	cubic yards
DA	Department of Army
DERP	Defense Environmental Restoration Program (now ER,A)
DD	Decision Document
DNAPL	Dense Non-Aqueous Phase Liquid
DRO	Diesel Range Organics
DSERTS	Defense Site Environmental Restoration Tracking System (now AEDB-R)
EPA	(United States) Environmental Protection Agency
ER,A	Environmental Restoration, Army (formerly DERA)
ET	Evapotranspiration
FFA	Federal Facility Agreement
FFSRA	Federal Facility Site Remediation Agreement
FS	Feasibility Study
ft	foot
FY	Fiscal Year
gal	gallon
gpd	gallons per day
GW	Groundwater
HRS	Hazard Ranking System
IAP	Installation Action Plan
IM	Interim Measure
IRA	Interim Remedial Action
IROD	Interim Record of Decision
IRP	Installation Restoration Program
IWTP	Industrial Wastewater Treatment Plant
K	\$1,000
kg	kilograms
LTM	Long-term Management
LTO	Long-term Operation
MATES	Mobilization and Training Equipment Site
MCL	Maximum Contaminant Level
mg	milligrams
MMRP	Military Munitions Response Program
MW	Monitoring Well
NE	Not Evaluated
NFA	No Further Action
NPDES	National Pollutant Discharge Elimination System
NOV	Notice of Violation
NPL	National Priorities List

Acronyms & Abbreviations

OB/OD	Open Burning/Open Detonation
OU	Operable Unit
O&M	Operation & Maintenance
PAH	Poly Aromatic Hydrocarbons
PA	Preliminary Assessment
PBC	Performance-Based Contract
POL	Petroleum, Oil & Lubricants
POM	Program Objective Memorandum (budget)
PP	Proposed Plan
PY	prior year
RA	Remedial Action
RA(O)	Remedial Action - Operation
RAB	Restoration Advisory Board
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
REM	Removal
RFA	RCRA Facility Assessment
RI	Remedial Investigation
RIP	Remedy-in-Place
ROD	Record of Decision
RRSE	Relative Risk Site Evaluation
SARA	Superfund Amendments and Reauthorization Act
SATCOM	US Army Satellite Communications
SI	Site Inspection
SVOC	Semi-Volatile Organic Compounds
SWMU	Solid Waste Management Unit
TAPP	Technical Assistance for Public Participation
TPH	Total Petroleum Hydrocarbons
THMs	Trihalomethanes (THMs)
UDLP	United Defense Limited Partnership
ug/l	microgram per liter
USACE	United States Army Corps of Engineers
USACHPPM	United States Army Center for Health Promotion and Preventive Medicine (formerly USAEHA)
USAEC	United States Army Environmental Center
USAEHA	United States Army Environmental Hygiene Agency (now USACHPPM)
USATHAMA	United States Army Toxic and Hazardous Material Agency (now USAEC)
UST	Underground Storage Tank
VOC	Volatile Organic Compounds
yr	year

Acronyms & Abbreviations

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and Resource Conservation and Recovery Act (RCRA) Acronym Conversions

CERCLA

Preliminary Assessment (PA)

=

RCRA

RCRA Facility Assessment (RFA)

Site Inspection (SI)

=

Confirmation Sampling (CS)

Remedial Investigation/
Feasibility Study (RI/FS)

=

RCRA Facility Investigation/Corrective
Measures Study (RFI/CMS)

Remedial Design (RD)

=

Design (DES)

Remedial Action (Construction)
(Construction) (RA(C))

=

Corrective Measures Implementation
(CMI(C))

Remedial Action (Operation)
(Operation) (RA(O))

=

Corrective Measures Implementation
(CMI(O))

Long-Term Management (LTM)

=

Long-Term Management (LTM)

Interim Remedial Action (IRA)

=

Interim Measure (IM)

CERCLA and RCRA Underground Storage Tank (UST) Acronym Conversions

CERCLA

Preliminary Assessment (PA)

=

RCRA UST

Initial Site Characterization (ISC)

Remedial Investigation (RI)

=

Investigation (INV)

Feasibility Study (FS)

=

Corrective Action Plan (CAP)

Remedial Design (RD)

=

Design (DES)

Remedial Action (Construction)
(RA(C))

=

Implementation (Construction) (IMP(C))

Remedial Action (Operation)
(RA(O))

=

Implementation (Operations) (IMP(O))

Long-Term Management (LTM)

=

Long-Term Management (LTM)

Interim Remedial Action (IRA)

=

Interim Remedial Action (IRA)

Installation Locale:

Fort Carson occupies approximately 220 square miles in central Colorado, adjacent to the eastern flank of the Rocky Mountain Front Range and the Pike National Forest. The northern edge of the post is located in El Paso County, south of Colorado Springs, and the southern boundary is approximately 10 miles north of and parallel to US Highway 50 in Pueblo County. A small area in the southwestern portion of the post is located in Fremont County.

Installation Mission:

The primary mission of Fort Carson is the training and readiness of all assigned and attached troops to ensure combat-ready forces. Fort Carson also serves several off-post satellite units and activities in its geographical area of responsibility. The U.S. Air Force Academy, Cheyenne Mountain Air Station, Peterson AFB, and 58 Reserve components in nine states also utilize Fort Carson administrative, training, logistical, and other services.

Lead Organization: Installation Management Agency, Northwest Region

Lead Executing Agency:

US Army Corps of Engineers, Omaha District – Investigation and Remediation

Regulatory Participation:

Federal: US Environmental Protection Agency (EPA), Region VIII, Federal Facilities Branch

State: Colorado Department of Public Health and Environment (CDPHE)
Colorado Department of Labor and Employment, Division of Oil and Public Safety (OPS)

Local: El Paso County

National Priorities List (NPL) Status: Non-NPL and Non-CERCLA

RCRA STATUS:

- Large Quantity Generator
- RCRA Part B Permit effective Oct. 29, 1995 #CO2210020150
- Interim Subpart X Permit (Under Negotiation)

As of the date of this IAP, CDPHE is currently renewing the RCRA Part B Permit renewal application.

Installation Restoration Advisory Board (RAB) STATUS: RAB formed in 1994 and is currently active.

Installation Program Summaries:

IRP

Primary Contaminants of Concern: Organics, Inorganics, Explosives

Affected Media of Concern: Soil, Groundwater, Surface Water, Sediment, Indoor Air

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 2007/2011

Funding to date (up to FY05): \$41,909K

Current year funding (FY06): \$3,080K

Cost-to-Complete (FY07+): \$27,193K

Cleanup Program Summary

Installation Historic Activity: Construction of Camp Carson began in 1942, shortly after the bombing of Pearl Harbor. The installation was known originally as Camp Carson (named after the frontier hero, General “Kit” Carson), and served primarily as a training facility for more than 100,000 soldiers during World War II. The 71st, 89th, and 104th Infantry Divisions trained at the installation. The Camp was also the site of the Mountain Training Center, the Army Nurse Corps Training Center, and an internment camp for 9,000 German and Italian prisoners of war.

In 1946, the War Department declared Camp Carson a permanent military post. Activities at the Camp were greatly reduced, and only 600 personnel remained at the site. During the 1950s, the mission of Camp Carson continued to be basic and advanced training for combat-ready troops. Reserve and National Guard units were located on site during the Korean Conflict, and Camp Carson served as a separation center where more than 100,000 soldiers were processed between 1951 and 1953. In 1954, the name of the installation was officially changed from Camp Carson to Fort Carson.

In 1961, Fort Carson was selected as the site for a new army training center, but the center was phased out after 1 year. The 5th Infantry Division (Mechanized) was activated and stationed at Fort Carson between 1962 and 1964.

In 1965, approximately 78,500 acres were acquired, increasing the size of the installation to 137,403 acres. Fort Carson was now large enough to support and train an entire division. Concurrently, military strength at Fort Carson was increased from 10,000 to 25,000 troops between 1965 and 1967 with the escalation of the Vietnam conflict. In July and August of 1965, two floods occurred in the region that caused major damage to the area and the installation. The first flood resulted in the loss of several lives and \$100 million in damage to the region, and the second flood caused \$160,000 in damages at the installation. Throughout the 1970s, the mission of Fort Carson continued to be the maintenance and training of combat-ready troops. The 4th Infantry Division (Mechanized), also known as the “Iron Horsemen,” was redeployed to Fort Carson from Vietnam. During 1995, Fort Carson became the home of the 10th Special Forces Group and the 3rd Armored Cavalry Regiment in addition to the 43rd Support Group. Two brigades of the 4th Infantry Division along with the Division Headquarters were moved to Fort Hood, TX. The 3rd Brigade remained at Fort Carson. As of 1995, operations at Fort Carson were carried out by approximately 20,000 personnel.

The principal industrial operations at Fort Carson have been the repair and maintenance of vehicles and aircraft. The Consolidated Maintenance Facility (Bldg. 8000) performs specialized repair of tactical and heavy construction and engineering equipment. Vehicle maintenance, at all unit motor pools, includes routine oil changes, lubes, washdowns, and refueling.

On June 4, 1999, the 7th Infantry Division was activated at Fort Carson as an Integrated Division (composed of an Active Component and Army National Guard Units). With its

Cleanup Program Summary

headquarters at Fort Carson, the Division consists of the 39th Infantry Brigade (Arkansas), the 41st Infantry Brigade (Oregon), and the 45th Infantry Brigade (Oklahoma). The Division was originally activated on December 10, 1917.

Installation Historic Activity (continued)

Many activities that support training include: vehicle maintenance, aviation maintenance, weapons maintenance, range qualifications.

Major tenants include: Navy and Marine Corps Reserve, Colorado Army National Guard, Army Reserve, MEDCOM, DRMO, AAFES, Special Forces, Special Operations.

Cleanup Program Historic Activity IRP

- Prior Year Progress: To date, a total of five Compliance Orders have been issued to Fort Carson by the CDPHE. The Compliance Orders are dated April 29, 1988, November 18, 1994, March 10, 1997, July 30, 1998 and March 22, 2002, and include violations related to specific SWMUs, as well as general Part B Permit non-compliance concerns. Currently, both the 1997 and 2002 orders are open.
- Future Plan of Action: Complete CMS phases in preparation for Installation-wide Performance Based Contract

BRAC

In September 2005, Fort Carson was recommended as a gaining installation by the Base Realignment and Closure (BRAC) Commission. The recommendation was approved by the BRAC Commission in October 2005 and the President in November 2005. Construction activities began in spring 2006 to accommodate the additional troops anticipated for arrival between FY06 and FY08. Several sites identified for redevelopment in FY06 include six SWMUs listed in the Part B Permit: SWMU 34, SWMU 45, SWMU 67, SWMU 72, SMWU 74 and SWMU 75. In support of future construction activities, CDPHE issued a letter on September 26, 2005 providing guidance on streamlining the process for site closeout in an effort to facilitate the planned construction activities.

FORT CARSON

Installation Restoration Program

Total AEDB-R IRP Sites/ AEDB-R sites with Response Complete: 78/62

Different Site Types (includes all sites, before and after RC):

1 Above Ground Storage Tank	7 Soil Contamination After Tank Removal
3 Burn Areas	3 Spill Site Areas
5 Contaminated Fill	4 Storage Areas
1 Contaminated Sediments	3 Surface Disposal Areas
2 Contaminated Groundwater	3 Surface Impoundment/Lagoons
3 Disposal Pit/Dry Wells	15 Underground Storage Tanks
2 Drainage Ditch	1 Underground Tank Farm
1 Dip Tank	1 Unexploded Munitions/Ordnance
1 Explosive Ordnance Disposal Area	2 Washracks
1 Fire/Crash Training Area	1 Waste Lines
4 Incinerators	2 Waste Treatment Plants
12 Landfills	

Most Widespread Contaminants of Concern: Organics (solvents, petroleum hydrocarbons, etc.), Explosives (TNT, RDX, etc.), Inorganics

Media of Concern: Soil, Groundwater, Surface Water, Sediment, Indoor Air

Completed Removal (REM)/Interim Remedial Action (IRA)/Remedial Action (RA):

FTC-009, Landfill 5 (1946-1956), evapo-transpiration cap, 2000
 FTC-010, Landfill 6 (1942-1945), waste removal, 2000
 FTC-018, Range 1A, burn trench removal, 2001
 FTC-019, Sludge Trench Pit, pit removal, 2001
 FTC-020, Grit/Oil Pit, source removal, 2005
 FTC-021, Abandoned Fire Training Area, oil/water separator removal, 2001
 FTC-017, Range 1, burn trench removal, 2001
 FTC-017, Range 1, concrete burn pad removal, 2001
 FTC-077, Former Lime Pit Site in Bldg 8110, lime pit removal, 2003
 FTC-078, Wash Rack Site North of Bldg 8110, wash rack removal, 2003
 FTC-083, North Specker Avenue Plumes, sand and grease traps removal, 2001
 FTC-083, North Specker Avenue Plumes, AS/SVE pilot study, 2001 to 2005
 FTC-047, Land Spreading Field, hot spot removal, 2004
 FTC-058, Former Vapor Degreaser, degreaser sump removal, 1998

IDENTIFIED POSSIBLE REM/IRA/RA: CMI(C) at SWMU 2/3, 7, 8, 9, 13, 14,16, 24, 53, 75, 84, 164, 167, 168

Total IRP Funding:

Prior Years (up to FY05):	\$41,909K
Current year funding (FY06):	\$ 3,080K
Future Requirements (FY07+):	\$27,193K
TOTAL:	\$72,182K

Duration of IRP:

Year of IRP Inception: 1994

Year of IRP RIP/RC: 2007/2011

Year of IRP Completion including Long-Term Maintenance (LTM): 2041

IRP Contamination Assessment

IRP Contamination Assessment Overview:

Fort Carson's principal industrial operation has been the repair and maintenance of vehicles, aircraft, and equipment. Approximately twenty maintenance facilities (motor pools) have been constructed throughout Fort Carson, including the Consolidated Maintenance Facility at Building 8000, which performs specialized repair of tactical and heavy construction and engineering equipment and vehicles. In addition, since the 1960s, more than 300 underground and above ground storage tanks have been installed throughout Fort Carson to store a variety of fuels (gasoline, JP-4, JP-8, kerosene, diesel), and used/waste oils. To date, over 150 individual USTs have been removed and 36 have been upgraded to comply with 1998 state and EPA standards. Investigations of these facilities in July 1992 detected low levels of PCE, TCE, TCA, heavy metals, petroleum hydrocarbons, and several other substances in the soil and groundwater at some sites. Results of the investigations prompted the implementation of an installation-wide groundwater-monitoring program.

In May 1994, the EPA completed a RCRA facility assessment (RFA) of Fort Carson. The CDPHE augmented the RFA in September 1994, and in October 1995, based on sites identified in the RFA, issued Fort Carson a RCRA Hazardous Waste Part B Permit designating the Solid Waste Management Units (SWMUs) listed in this IAP. The FTC numbers also listed in this IAP were designated in the U.S. Army Environmental Hygiene Agency (USAEHA) *Interim Final Report, Hazardous Waste Consultation No. 37-26-0185-89, Evaluation of Solid Waste Management Units, Fort Carson, Colorado Springs, Colorado* (1988).

The RCRA Part B Permit identifies several potential landfill sites that were primarily used for sanitary and construction debris, OB/OD units, a fire training area, battery acid neutralization shops, several vehicle wash rack drainage areas, and several additional areas listed in the respective site description sections. The most widespread contaminants of concern are petroleum related contaminants (POL), metals, inorganics, and volatile organic compounds (VOCs) including, but not limited to, BTEX, TCE, PCE, TCA, and DCE. Limited amounts of contamination other than POL and solvents have been discovered to date. Several sites have been found to have groundwater contamination above regulatory limits. Based on the results of the ongoing groundwater-monitoring program, there are no known hazardous constituents migrating off or onto the installation.

The current AEDB-R database for the Fort Carson installation contains information on 78 sites. The database numbering system does not accurately reflect the number of physical sites because several AEDB-R numbers refer to multiple site locations. For example, FTC-023 includes 56 locations of former used/waste oil underground storage tanks (USTs). More detailed information about each of the sites is presented in the respective site description sections.

In accordance with the Part B Permit requirements, known or suspected constituents of concern identified for each SWMU in the permit were and are currently being addressed. Contaminants of concern identified above regulatory or risk-based screening criteria during the RFI process are listed in the "STATUS" box for each SWMU. In cases where no RFI

IRP Contamination Assessment

has been performed at the SWMU (i.e., active facilities), the contaminants listed in the "STATUS" box reflect the suspected constituents of concern listed in the Part B Permit.

IRP Cleanup Exit Strategy:

Status of Sites Currently Managed in AEDB-R

Status of RFI phase -

Sites RFI Phase Completed at: 41 (includes 21 of the FTC-023 SWMUs)

Sites Currently in RFI Fieldwork Stage: 15 (includes 11 of the FTC-023 SWMUs)

Sites Currently in RFI Reporting Stage: 13 (includes 12 of the FTC-023 SWMUs)

Status of CMS phase -

Sites where a CMS was imposed: 8 (includes 2 of the FTC-023 SWMUs)

Sites CMS phase completed at: 0

Sites currently in CMS fieldwork stage: 8 (includes 2 of the FTC-023 SWMUs)

Sites currently in CMS reporting stage: 0

Status of LTM phase -

Sites currently requiring an NFA petition and/or risk assessment: 28 (includes 18 of the FTC-023 SWMUs)

Final Remedy Status -

Sites that achieved NFA via Permit: 75 (includes 13 FTC-023 SWMUs)

Sites that achieved NFA via Process: 3 (includes 1 FTC-023 SWMU)

Sites that achieved Remedy Complete: 2

1992

- FTC-33, SWMU-53, Bldg. 8000, Pre-Design Study Report UST Sites, Jun
- UST Sites, Remedial Design, Jun
- Bldg. 8000, Two 26K Gallon Used Oil Tanks, Jun

1993

- Final Site Specific Safety, Health and Emergency Response Plan for Sludge Pit Excavation, Jan
- Supplemental Site Investigation Report, UST Sites, Feb
- Multiple USTs Final A-E, Chemical Data Acquisition Plan/Work Plan for Site Assessment on Multiple USTs, Mar

1994

- FTC-6, SWMU-2, Landfill 2 Remedial Design Landfills 2,5 & 6 and Vapor Degreaser(Rev.1) (Delivery Order Specific), Dec
- FTC-20, SWMU-13, Grit/Oil Pit Final A-E Work Plan, Mar
- Final A-E Chemical Data Acquisition Plan/Work Plan for Site Assessment on Multiple USTs, Mar
- Final Site Safety and Health Plan, Grit/Oil Pit, Mar
- Final, Multiple USTs, Mar
- Design Concept Submittal, Jun
- Pre-Final Design Analysis Report, Jul
- Final Design Submittal, Vol.1: Design Analysis Report, Aug
- Final Design Submittal, Vol.2: Specifics & Bid Schedule, Aug
- Final Design Submittal, Vol.3: Cost Estimates and Construction Schedule, Aug
- Final Submittal Grit/Oil Pit Voluntary Corrective Action, Aug
- Final Sampling & Analysis Plan for Group A, Aug
- Programmatic Site Safety & Health Plan for Voluntary Site Assessment Health-Based Risk Assessment & Remedial Design, Oct
- Sampling and Analysis Plan for Group B Sites (Delivery Order Specific), Nov
- Final Sampling and Analysis and Site Specific Health & Safety Plan for Group B Sites, Nov
- Draft Final, Rev 1, Sampling and Analysis and Site Specific Health & Safety Plan for Group B Sites, Nov
- Final Sampling and Analysis Plan and Site Specific Health and Safety Plan for Equalization Basin, Nov
- Site Safety and Health Plan, Former Fire Training Area, Dec
- Site Safety and Health Plan, Voluntary Site Investigation and Health-Based Risk Assessment, Dec
- Final RCRA Facility Assessment for Fort Carson

1995

- FTC-73, SWMU-26, Equalization Basin, Draft Addendum 1 to Final Sampling and Analysis Plan for Equalization Basin, Feb
- Final Site Assessment Report for Multiple USTs, Feb

1995 (cont.)

- Fort Carson Restoration Advisory Guidebook, Apr
- Final Analytical Data Package for Site Investigation at Group B Sites, Mar
- Final QCSR for Site Investigations at Group B Sites, Apr
- Site Investigation at Group B Sites, Apr
- Final, Analytical Data Package for Site Investigation at Group A Sites, Jun
- Executive Summary & Rev Table of Contents for Final Site Assessment Report for Multiple USTs, Jun
- Analytical Data Package for RFI at Landfills 2,5 & 6 and Vapor Degreaser Site at Building 8000 – Vol 1 & 2, Jul
- Final Analytical Data Package for RFI, Equalization Basin, Jul
- RFIs at Group A Sites: Landfill 4, DRMO Hazardous Waste Storage Area, Vehicle Wash Rack Drainage, Sep
- RFIs at Group a Sites: Landfill 4, DRMO Hazardous Waste Storage Area, Vehicle Wash Rack Drainage, Sep
- FLPM, Working Draft Field and Laboratory Manual for Fort Carson Army Installation, Sep
- FTC-58, SWMU-16, Vapor Degreaser, Design Analysis for Former Vapor Degreaser and Soil Vapor Extraction System, Oct
- QCSR, Equalization Basin, Oct
- Final Report Fort Carson Landfill Survey (Subcontract Geo-Centers), Nov
- Final Revision 2 RFI Work Plan, Nov
- Revised Conceptual (30%) Design Engineering Design Analysis Landfill 2, Nov
- Final RFI Work Plan Addendum for Landfill 6, Nov
- Site Safety and Health Plan, Grit/Oil Pit, Nov
- Final Quality Control Summary Report for RFI at Group A Sites
- Group B Includes Range 1A, Range 121, Range 123, and Demolition Area
- Revision 2, Site-Specific Safety and Health Plan, Grit/Oil Pit, Dec

1996

- RFI Work Plan, Draft Final, Landfill 1 SWMU 1, FTC-5, Jan
- FTC-14, SWMU-10, Landfill 10, Draft Final, RFI Work Plan, Landfill 10, Jan
- Draft Final RFI Work Plan (FEC Document), Jan
- RFI Report and Baseline Human Health Risk Assessment for Group A Sites, Jan
- Site Specific Safety & Health Plan Landfills 2,,5,6 Cap Installation Program, Jan
- Draft Final Neutralization Shops, Bldgs 8000, 4030, 8142, Jan
- Revision 2, Program Site Safety & Health Plan for RFI Remedial Design Activity, Feb
- Contractor Programmatic Site Safety & Health Plan for RFI Remedial Design Activities, Feb
- Final Sampling Plans for Quarterly Groundwater Monitoring Program – 1996, Apr
- Quarterly Groundwater Monitoring Program, Final-Rev 1, Manual/Site Specific Health and Safety Plan, May
- Final Design Analysis, Landfill 6, Mar
- Construction Specifications, Landfill 6, Mar

1996 (cont.)

- Final Field and Laboratory Procedures Manual for Fort Carson Army Installation, Rev 0, Mar
- Draft Final RFI Work Plan, Landfill 7, Apr
- FTC-74, SWMU-35, New Central Wash Rack Draft Final, RFI Work Plan, New Central Wash Rack, Apr
- FTC-75, SWMU-36, Old Central Wash Rack, Draft Final RFI Work Plan, Old Central Wash Rack, Apr
- FTC-42, SWMU-22, Original Sewage Treatment Plant, RFI Work Plan, Apr
- Draft Final RFI Work Plan IWWTP (FEC Document), Apr
- FTC-13, SWMU-9, Landfill 9, Draft Final RFI Work Plan, Landfill 9, Apr
- Final Landfill 5 ET Cap Annual Performance Monitoring Report for 2002, Apr
- Final Design Analysis; Landfill 5, Apr
- Landfill 5 Construction Specifications, Apr
- Draft Final RFI Work Plan, Landfill 7, Apr
- FTC-13, SWMU-9, Landfill 9 Draft Final RFI Work Plan , Landfill 9, Apr
- Final Sample Plans for Quarterly Groundwater Monitoring Program – 1996, Apr
- Final Design Analysis; Landfill 2, May
- Construction Specifications Landfill 2, May
- Analytical Data Package, May
- Final, Rev 1, Quarterly Groundwater Monitoring Procedures Manual/Site Specific Health and Safety Plan, May
- Final Field and Laboratory Procedures Manual for Fort Carson Army Installation, May
- Fort Carson Community Involvement Plan, May
- FTC-16, SWMU-12, Landfill 12, NFA Request Landfill 12, Jun
- Draft Final RFI Report, Grit/Oil Pit, Jun
- Analytical Data Package – Volume I&II, Jun
- Final NFA Request for SMWUs 93,94,95 and 97 through 106, Former Used/Waste Oil Above Ground Storage Tanks, Jul
- Draft Final Oil/Solvent USTs, Jul
- Draft Final RFI Work Plan Golf Course Sewage Treatment Plant Effluent and Sludge Spreading Area (FEC) Jul
- Draft Final RFI Work Plan, Jul
- FTC-76, SWMU-163, Industrial Wastewater Treatment System, Draft Final RFI Work Plan for Fort Carson Sewer Systems, Jul
- Revision 1, QCSR, Aug
- QCSR, Aug
- Draft Final Group A Sites, Oct
- QCSR – Landfills 2,5 & 6, Oct
- Analytical Data Package, Former Vapor Degreaser, Oct
- Final RFI Work Plan for Multiple USTs, Oct
- Draft Final Voluntary Site Investigation and Risk Assessment for Group B Sites, Oct
- Letter Work Plan for Ft Carson, Bldg. 8000, Nov
- Draft Final Cap Installation Work Plan Landfills 5 & 6, Dec
- Final Sampling Plans for Quarterly Groundwater Monitoring Program 1997, Dec

1997

- Final Letter Work Plan for Fort Carson Sewer System, Jan
- Final Voluntary Assessment Work Plan for Bldg. 749- West Drainage Ditch, Jan
- Rationale for Additional Groundwater Sampling Activities, Bldg. 749 – West Drainage Ditch, Mar
- Final Field and Laboratory Procedures Manual for Fort Carson Army Installation, Mar
- Final Field and Laboratory Procedures Manual for Fort Carson Army Installation, Apr
- Final Analytical Data Packages, Quarterly Groundwater Monitoring Program 1997, Apr
- Possible Monitoring Well Locations for Foothills Engineering Consultants Activities, Apr
- Final Newly Identified SWMU Report, May
- Construction Activities at Landfills 5 and 6 (Stormwater Pollution Prevention Plan), Jun
- Draft Final RFI Work Plan Addendum, Grit/Oil Pit, May
- Hydrogeologic Study Final, Jul
- Draft Final Gradefill Work Plan for Landfills 5 & 6, Jul
- FTC-15, SWMU-11, Landfill 11, Draft Final RFI Work Plan, Landfill 11, Jul
- Final Analytical Data Packages, Quarterly Groundwater Monitoring Program 1996, Jul
- Letter Report for Relative Risk Groundwater Sampling at Selected Sites completed During Sep 1996, Jul
- Preconstruction Survey Report, Landfill 5, Aug
- Final Conceptual Removal Plan, Equalization Basin, Aug
- Final Quarterly Groundwater Monitoring Program, 1996, First Quarter, Vol 1, Sep

1998

- Additional ET Cap Modeling Landfills 5 & 6, Jan
- Draft Final, RFI Report, Landfill 12, Jan
- Draft Final Gradefill Work Plan Landfill 2, Jan
- Revised Final Sampling and Analysis Plan for Remedial Design for Landfills 2,3,5 and 6 and Vapor Degreaser, Jan
- Quarterly Site Specific Monitoring Program, 3rd Quarter 1997 Final, Jan
- Draft Final RFI Work Plan, Bldg. 8000, Former Waste, Jan
- Final Sampling Plans for Quarterly Groundwater
- Letter Work Plan for Additional Basin Sludge Sampling, Equalization Basin, Feb
- Quarterly Site Specific Monitoring Program 4th Quarter 1997 Final, March
- Letter Work Plan Addendum for Sludge Removal, Equalization Basin, Apr
- Final Programmatic Construction Quality Assurance/Quality Control Plan, Apr
- Analytical Data Package – Volume 2, May
- Gas Probe Monitoring Results for Landfills 2,5 & 6 (Apr-Jun, 1998) Jun
- Results of Soil-Gas Pilot Test and Letter Work Plan for Additional Investigation Activities at North Specker, Jun
- Final Analytical Data Packages, Quarterly Groundwater Program, 1996, Second Quarter, Vol. 2, Jun
- Final RFI Work Plan, Former Used/Waste Oil Tanks and Oil/Water Separators – 33 Site, Jun
- Draft Final, Revision 1 RFI Work Plan, Former Used/Waste Oil Tanks and Oil/Water Separators – 33 Site, Jul

1998 (cont.)

- FTC-45A, 45B, 45C, SWMU-28, 29, 30, Bldgs. 8000, 8030, 8142 Battery Acid Neutralization Shops, Final Work Plan, Battery Acid Neutralization Shops, Sep
- Final Quarterly Groundwater Monitoring Program, 1996, Third Quarter, Vol 3, Sep
- Final RFI Work Plan, Landfill 12 (ECC), Oct
- Final RFI Summary and Letter Work Plan Addendum, Oct
- Final Analytical Data Package Addendum, Equalization Basin Vol. II, Oct
- Quarterly Site Specific Monitoring Program 2nd Quarter 1998 Final, Nov

1999

- Final Sampling Plans for Quarterly Groundwater Monitoring Program, 1999, Quarters 1&3, Jan
- Quarterly Site Specific Monitoring Program 3rd Quarter 1998 Final, Feb
- Draft Final Motor Pool Cap Work Plan, Landfill 5, Feb
- FTC-43, SWMU-51, DIO Draft Final Revision 1 RFI Work Plan for DIO Hazardous Waste Storage Area, Feb
- Draft Final ET Cap Work Plan Landfills 5 & 6, Mar
- Final Quarterly Groundwater Monitoring Program, 1996, Fourth Quarter, Vol. 4, Mar
- Final RFI Report, Range 1, Open Burn Grounds (ECC), May
- Final Design Analysis for Landfill 5, Motor Pool Cap (HLA), Jun
- Final Motor Pool Cap Work Plan, Landfill 5, Jun
- Final Analytical Data Packages, Quarterly Groundwater Monitoring Program, 1999, Jun
- Draft Final Phase I RFI Report, Former Used/Waste Oil Tanks – 11 Site, Jul
- Draft Final QCSR, Phase I RFI Former Used/Waste Oil Tanks – 11 Site, Jul
- Letter Work Plan Addendum for Northern Manholes, Bldg. 8000, Jul
- Quarterly Site Specific Monitoring Program 4th Quarter 1998 Final, Aug
- Quarterly Site Specific Monitoring Program 1st Quarter 1999, Final, Aug
- Draft Final Gradefill Work Plan Landfill 1 Drainage Channel, Aug
- Draft Final RFI Report, Aug
- Site Specific Safety & Health Plan, Petroleum Hydrocarbon Site Drilling & Remediation, Aug
- Draft Final Letter Work Plan Addendum, Former Used/Waste Oil Tanks and Oil/Water Separators – 33 Site, Modification to Field Sampling for the Former Oil/Water Separator Discharge Locations, Sep
- Draft Final Revision 1, Phase I CMS Work Plan, Oct
- Draft Final RFI Report Sewage Treatment Lagoons, Nov
- Draft Final Oil/Water Separator Removal Work Plan Fire Training Area, Nov
- Draft Final, RFI Work Plan for Industrial Wastewater System, Nov
- Draft Site Close Report – Bldg. 749, RFI on Numerous USTs
- FTC-8, SWMU-4, Landfill 4, Draft Final Revision 1, RFI Work Plan, Dec

2000

- Quarterly Site Specific Monitoring Program 2nd Quarter 1999 Final, Jan
- Draft Final RFI Work Plan, Landfill 10, Jan
- Final Sampling Plans for Quarterly Groundwater Monitoring Program – 2000, Jan

2000 (cont.)

- Draft Final ET Cap Work Plan Landfill 5, Mar
- Draft Final SWMU 167 Summary report, North Specker Avenue Groundwater Plumes, Mar
- Final Certification Report Landfill 5 Motor Pool Cap, Mar
- Final RFI Report, Equalization Basin, Mar
- Draft Letter Work Plan Addendum for Former Used/Waste Oil Tanks – 33 Site, Re-sampling Associated w/ Quanterra Environmental Services Performance, Mar
- Integrated Solid Waste Management Plan, Mar
- Quarterly Site Specific Monitoring Program 3rd Quarter 1999 Final, April
- Analytical Data Package – Volume 3, Apr
- Final RFI Report, Grit/Oil Pit, May
- Final Letter Work Plan for Installing Additional Temporary Direct Push Wells Grit/Oil Pit and Landfill 1 CMA – Phase 1, May
- Draft Final Construction and Debris Landfill Design and Operation Plan, Jun
- Final QCSR – Addendum to RFI Report, Jun
- SWMU-111, Final Letter Work Plan, Subsurface Investigation – Bldg. 8110, Jun
- Draft Final RFI Report Addendum Letter Report Sewage Treatment Lagoons, Jun
- FTC-77, SWMU-165, Bldg. 8110 Former Lime Pit, Final Letter Work Plan Subsurface Investigation, Jun
- FTC-78, SWMU-166, Bldg. 8110 Former Wash Rack, Final Letter Work Plan Subsurface Investigation, Jun
- SWMU-74,75 – Final Letter Work Plan Addendum, Former Used/Waste Oil Tanks and Oil/Water Separators – Bldg. 2840 and Bldg. 2940, Jul
- SWMU-72,74,89,90 – Final Letter Work Plan Addendum – Former Used/Waste Oil Tanks and Oil/Water Separators – Bldg. 2735, Jul
- SWMU-110, 72 – Final Letter Work Plan Addendum, Former Used/Waste Oil Tanks – Bldg. 2427 and 2735, Jul
- SWMU-110 – Final Letter Work Addendum, Former Used/Waste Oil Tanks – Bldg. 2427, Jul
- Analytical Data Package for Sewage Treatment Plant, Jul
- Final Quality Control Summary Report RFI on Multiple UST (FEC Doc), Jul
- Final Construction Report Landfill 5 Motor Pool Cap, Aug
- Draft Final, QCSR, Aug
- MatcomTM Suitability Report (Harding Lawson), Aug
- Draft Final RFI Work Plan, Bldg. 8001, Former Waste Oil/Solvent USTs, Aug
- Fort Carson Community Involvement Plan, Aug
- Final Letter Work Plan for Additional Subsurface Investigation, Sep
- Final Letter Work Plan for the Installation of Additional Soil Borings – Bldg. 6290, Sep
- Interim Report, Subsurface Investigation and Pilot Test Installation, Nov
- Final Work Plan for Utility Relocation Project Landfill 6 (HLA), Nov

2001

- Final Overhead Electrical Power & Communication Lines Relocation Work Plan, Jan
- Work Plan for Additional Soil Sampling, Jan

2001 (cont.)

- Revised Draft Final Letter Work Plan for Interim Remedial Action, Jan
- Final Sampling Plans for Quarterly Groundwater Monitoring Program, 2001, Jan
- Final Certification Report Landfill 5 Motor Cap (HLA), Feb
- Draft Final Work Plan for Additional Soil Sampling, Feb
- Final RFI Work Plan, Feb
- Draft Final RFI Report Landfill 5, Mar
- Draft Revision 2 RFI Work Plan, Landfill 11, Mar
- Quarterly Site Specific Monitoring Program 2nd Quarter 2000 Final, Mar
- Quarterly Site Specific Monitoring Program 1st Quarter 2001 Final, Mar
- Draft Final Phase I CMS Report, Landfill 1 and Grit/Oil Pit, Mar
- Draft Final RFI Report, Vapor Degreaser, Mar
- Draft Final No Further Action Request, Mar
- Module II, Background Groundwater Proposed Final Well Selection for Background Groundwater Data Set, Mar
- Draft Final RFI Report, Fort Carson Sewer System (Industrial Wastewater Lines), Apr
- Final Letter Work Plan for Additional Soil Sampling Range 123, Apr
- Final Site Characterization Reports, Bldg. 1860 and Bldg. 6290, Apr
- Final Letter Work Plan for Addition Subsurface Investigation, May
- Quarterly Site Specific Monitoring Program 3rd Quarter 2000 Final, May
- Final RFI Work Plan, BECS, May
- Draft Final EFI Report Vehicle Wash Rack Drainage Ditches, May
- Draft Final Report Bldg. 301 Drainage Ditch, May
- Draft Final Phase II CMS Work Plan, Landfill 1 and Grit/Oil Pit, Jun
- Draft Final Oil/Water Separator Removal Work Plan Fire Training Area, Jun
- SWMU-84, Draft Final Letter Work Plan Addendum, Former Used/Waste Oil Tanks – Bldg. 8300, Jun
- Draft Final RFI Work Plan for Additional Surface Soil Sampling, Jun
- Draft Final, Revision 1, RFI Work Plan Industrial Waste Water System, Jun
- Draft Final Removal Work Plan, Jun
- Draft Final Revision 1 RFI Report, Jul
- Draft Final Oil/Water Separator Removal Work Plan Addendum Fire Training Area, Jul
- Final RFI Report DRMO Hazardous Waste Storage Facility, Jul
- Draft Final Interim Corrective Measure Work Plan, Bldg. 8000, Jul
- Draft Final, RFI Report, Demolition Area, Jul
- Draft Final, Work Plan, Background Groundwater Data Set, Jul
- Final Interim Corrective Measure Work Plan, Bldg. 8000, Aug
- Final Quarterly Site Specific Monitoring Program, 4th Quarter 2000, Aug
- Final Phase II CMS Work Plan, Landfill 1 and Grit/Oil Pit, Aug
- FTC-12, SWMU-8, Landfill 8 Draft Final RFI Work Plan, Landfill 8, Sep
- Final Letter Work Plan Range 1, Open Burning Grounds, Sep
- Draft Final Conceptual Removal Plan, Range 1 Concrete Basin, Sep
- Final Phase I CMS Summary Report, Landfill 1 and Grit/Oil Pit, Sep
- Draft Final, RFI Report, Landfill 11, Oct
- Final Phase II CMS Work Plan, Landfill 1 and Grit/Oil Pit, Oct

2001 (cont.)

- Final Phase I CMS Summary Report, Landfill 1 and Grit/Oil Pit, Oct
- Final Work Plan, Background Groundwater Data Set, Oct
- Final RFI Report, Demolition Area, Nov
- Draft Final RFI Work Plan, Nov
- Draft Final, Module IV, Groundwater Protection Levels, Development of Groundwater Protection Levels, Nov
- Draft Final Evaluation of Background Soil Data for Fort Carson, Nov
- Final Construction Report Landfill 5 ET Cap, Dec
- Final, Revision 1, Oil/Water Separator Removal Work Plan Addendum Fire Training Area, Dec
- Analytical Data Package Addendum, Dec

2002

- Draft Final RFI Work Plan, Pete's Hill Dump, Jan
- Final Revision 1 RFI Work Plan, Jan
- Final QCSR DIO Hazardous Waste Storage Area, Jan
- Final QCSR Addendum DIO Hazardous Waste Storage Area, Jan
- Final RCRA Facility Investigation Report DIO Hazardous Waste Storage Area, Jan
- Final QCSR, Battery Acid Neutralization Shops, Jan
- Final RFI Report, Battery Acid Neutralization Shops, Jan
- Final Site Characterization Report Landfill 5 (HLA), Feb
- Final Certification Report Landfill 6 Waste Relocation, Feb
- Draft Final Landfill 5 ET Cap Annual Performance Monitoring Report for 2001, Feb
- Final ET Cap Work Plan, Landfill 5, Mar
- Draft Final Pilot Vapor Extraction Treatability Study Report, Grit/Oil Pit, Mar
- Draft Final, RFI Work Plan Addendum BECS, Mar
- Draft Final Revision 1 RFI Report, Apr
- Final QCSR Addendum, Apr
- Final Former Used/Waste Oil Above Ground Storage Tank Legal Descriptions, Apr
- SWMU-84 Draft Letter Work Plan Addendum, Former Used/Waste Oil Tanks – Bldg. 8300 (Paragon Analytics Chiller Malfunction Resampling), Apr
- Draft Final Revision 1 RFI Work Plan, Pete's Hill Dump, Apr
- Final Development of Site-wide RBCs, Apr
- Draft Final Module III, Human Health RBCs, Development of Site Wide Risk Concentrations, Apr
- Draft Final 2nd Quarter 2001, Groundwater Sampling Results, Landfill 5, May
- Final RFI Work Plan Landfill 8, May
- Draft Final Revision 1, QCSR, May
- Draft Final RFI Report, Sludge Trench Pit, May
- Module V, ECO, Draft Final Ecological Reconnaissance of B Ditch, Clover Ditch, and Central Unnamed Ditch, May
- Draft Final Pilot Vapor Extraction Treatability Study Report, Grit/Oil Pit, Jun
- Draft Final Groundwater Monitoring Plan for Equalization Basin, Jun
- Final Quarterly Site Specific Monitoring Program, 1st Quarter 2001, Jul

2002 (cont.)

- Draft Final CMS Work Plan Landfill 5, Jul
- Final QCSR, Phase I RFI, Former Used/Waste Oil Tanks – 11 Site, Jul
- Draft Proposed Methodology, Ecological Risk Assessment, Jul
- SWMU-84 Draft Final RFI Addendum, Former Used/Waste Oil Tanks – Bldg. 8300, Aug
- Draft Final Certification Report, Landfill 5, Aug
- Quarterly Site Specific Monitoring Program, 2nd Quarter 2001 Final, Aug
- Draft Final RFI Report, Sep
- Draft Final QCSR, Sep
- Final RFI Report Vapor Degreaser, Oct
- Final, Rev 1, Risk-Based Evaluation Procedures Manual, Module II, Sitewide Background Data Set for Groundwater, Oct
- Draft Final Quarterly Site Specific Monitoring Program, 2nd Quarter 2001 – 2nd Quarter 2002, Nov
- Draft Final Quarterly Site Specific Monitoring Program, 3rd Quarter 2001, Nov
- Map Landfill 1 ET Cap Conceptual Design, Nov
- Draft Final, CMS Work Plan Landfill 5, Nov
- Draft Final, Quarterly Site Specific Monitoring Program, 4th Quarter 2001-2nd Quarter 2002, Dec
- Draft Final Quarterly Site Specific Monitoring Program, 3rd Quarter 2002, Dec
- Draft Final, Revision 1, RFI Report, Sludge Trench Pit, Dec
- Draft Final, Rev 1 RFI Report, North Specker Avenue Groundwater Plumes, Dec

2003

- Draft Final Quarterly Specific Monitoring Program 3rd Quarter 2002, Jan
- Draft Final Revision 2 RFI Report, Jan
- Draft Final QCSR Addendum 2, Jan
- Final, Rev. 1, Risk-Based Evaluation Procedures Manual, Module IV, Development of GPLs, Jan
- Draft Final Landfill 5 ET Cap Annual Performance Monitoring Report for 2002, Feb
- Draft Final, Revision 1 Landfill 5 Soil Gas Investigation Work Plan, Mar
- Final Risk-Based Evaluation Procedures Manual, Module III, Sitewide RBCs, Approved, Mar
- Final Construction Report Landfill 5 ET Cap, May
- Final Certification Report Landfill 5 ET Cap, May
- (SVE system), Grit/Oil Pit, May
- Draft Final RFI Report, Former Long-Term Hazardous Waste Storage Area, May
- SWMU-61 – Draft Final & Final Phase I RFI Report, Former Used/Waste Oil Tank – Bldg. 1515, May
- SWMU-83 – Draft Final Phase I RFI Report, Former Used/Waste Oil Tanks – Bldg. 8200, May
- SWMU-85 – Draft Final Phase I RFI Report, Former Used/Waste Oil Tanks – Bldg. 8930, May
- Draft Final RFI Report and QCSR, Jun

2003 (cont.)

- SWMU-75, 84, 110 – Draft QCSR Addendum, Former Used/Waste Oil Tanks – 11 Site, Jun
- SWMU-111, Final Letter Work Plan Addendum, Former Used/Waste Oil Tanks, Bldg. 8110, Jun
- Final Landfill 5 Soil Gas Investigation Work Plan, Jun
- Final Quarterly Site Specific Monitoring Program, 2nd Quarter 2001 – 2nd Quarter 2002, Jun
- SWMU-67 Draft Final Phase I RFI Report, Former Used/Waste Oil Tank – Bldg. 2239, Jun
- SWMU-80 Draft Final Phase I RFI Report, Former Used/Waste Oil Tank – Bldg. 3874, Jun
- SWMU-82 Draft Final Phase I RFI Report, Former Used/Waste Oil Tanks – Bldg. 8152, Jun
- SWMU-81 Draft Final Phase I RFI Report, Former Used/Waste Oil Tanks – Bldg. 8142, Jun
- SWMU-110 Draft Final Phase I RFI Report, Former Used/Waste Oil Tanks – Bldg. 2427, Jun
- SWMU-75 Draft Final Phase I RFI Report, Former Used/Waste Oil Tanks – Bldg. 2940, Jul
- SWMU-84 Draft Final Phase I RFI Report, Former Used/Waste Oil Tanks – Bldg. 8300, Jul
- SWMU-83 Final Phase I RFI Report, Former Used/Waste Oil Tanks – Bldg. 8200, Jul
- SWMU-111 Draft Final Phase I RFI Report, Former Used/Waste Oil Tanks – Bldg. 8110, Jul
- FTC-5,7,11,20,26 SWMU-1,7,13,14,17,18 Combined Landfill Area Draft Final Interim Closure Plan CLA, Jul
- Draft Final Work Plan for Evapotranspiration Cap, Soil Investigation at Landfill 5, Jul
- Draft Final RFI Work Plan CLA, Jul
- Draft Final RFI Landfill 8, Jul
- Final Indoor Air Assessment Work Plan, Aug
- Draft Final Groundwater and Soil Gas Monitoring Report 1st Quarter 2003 Landfill 5, Aug
- Draft Final, Revision 1 Post-Construction Groundwater and Soil Gas Monitoring Plan Landfill 5, Aug
- Final Groundwater and Soil Gas Monitoring Report Third Quarter 2002, Aug
- Draft Final Letter Work Plan for Monitoring Well Installation and Quarterly Groundwater Sampling, Aug
- Draft Final RFI Work Plan Addendum, Former Lime Pit at Bldg. 8110 (Weston), Aug
- Draft Final Initial Groundwater Investigation Work Plan Landfill 5, Sep
- Final Work Plan for ET Cap Soil Investigation at Landfill 5, Sep
- Final RFI Work Plan CLA, Sep
- Final Interim Closure Plan CLA, Sep
- Draft Final RFI Work Plan Addendum, Landfill 2, Sep
- Draft Final RFI Work Plan Addendum, Range 1, Sep

2003 (cont.)

- Final RFI Work Plan Addendum, Range 1, Sep
- Final, Rev 2, Risk-Based Evaluation Procedures manual, Module IV, Development of GPLs, Sep
- Draft Final, Rev. 1, Risk-Based Evaluation Procedures Manual, Module V, Ecological Risk Procedures Manual, Sep
- Final RFI Report, Oct
- Final Initial Groundwater Investigation Work Plan Landfill 5, Oct
- Final Post-Construction Groundwater and Soil Gas Monitoring Plan, Landfill 5, Oct
- Final Groundwater and Soil Gas Monitoring Report, First Quarter 2003, Landfill 5, Oct
- Final Risk-Based Evaluation Procedures Manual, Module II, Sitewide Background Data Set for Groundwater, Oct
- Programmatic Site Safety and Health Plan for RFI and Remedial Design Activities, Oct
- Final Risk-Based Evaluation Procedures Manual, Module IV, Development of GPLs, Oct
- Final Landfill 5 ET Cap Annual Performance Monitoring Report for 2001, Dec
- Final RFI Report and QCSR, Dec
- Draft Final RFI Report, Former Lime Pit at Bldg. 8110 (Weston), Dec

2004

- Draft Final Landfill 5 Phase I Investigation for ET Cap at Landfill 5 (Golder Assoc.), Jan
- 1st Quarter Groundwater Monitoring Data for Range 121 Open Detonation and Open Dumping Area, Jan
- October 2003 Indoor Air Sampling Analytical Results for North Specker, Jan
- Draft Final Landfill 5 ET Cap GW and Soil Gas Monitoring Report for Nov 2003, Feb
- SWMU-58 Draft Final RFI Report, Former Used/Waste Oil Tanks – Bldg. 218, Feb
- SWMU-57 Draft Final RFI Report, Former Used/Waste Oil Tanks – Bldg. 635, Feb
- SWMU-84 – Draft Final Letter Work Plan Addendum, Former Used/Waste Oil Tanks – Bldg. 8300, Feb
- SWMU-110 – Draft Final Letter Work Plan Addendum, Former Used/Waste Oil Tanks – Bldg. 2427, Feb
- Draft Final RFI Report, Land Spreading Field, Feb
- SWMU-111 – Draft Final Letter Work Plan Addendum, Former Used/Waste Oil Tanks – Bldg. 8110, Mar
- Draft Final Landfill 5 ET Cap Annual Performance Monitoring Report for 2003, Mar
- Final RFI Report, Landfill 11, Mar
- Draft Final RFI, BECS, Mar
- Draft Final Supplemental RFI Work Plan, Bldg. 8000 – Former Waste Oil/Solvent Underground Storage Tanks, Mar
- Draft Final RFI Report, Former Long-Term Hazardous Waste Storage Area, Mar
- Final RFI Work Plan, Former POW Camp, Mar
- Module VI, NFA, Draft Final, Risk-Based Evaluation Procedures Manual, Module IV, Methodology for Identifying No Further Action at Solid Waste Management Units, Mar
- Final Landfill 5 ET Cap Annual Performance Monitoring Report for 2002, Apr
- Final Landfill 5 ET Cap Annual Performance Monitoring Report for 2003, Apr
- Draft Final Quarterly Monitoring Report, 4th Quarter 2003 ICP, Apr

2004 (cont.)

- Final RFI Report, Former Wash Rack at Bldg. 8110 (Weston), Apr
- SWMU-96 – Draft Final RFI Report, Former Used/Waste Oil Tank – Bldg. 1404, Apr
- Final RFI Report, Former Lime Pit at Bldg. 8110 (Weston), Apr
- Draft Final RFI Report, Fort Carson Sewer System (Industrial Wastewater Lines), Apr
- Draft Final RFI Report, Old Central Wash Rack, Apr
- Draft Final CMS Work Plan for North Specker Avenue, Apr
- Draft Final, Rev.2 Risk Based Evaluation Procedures Manual Module 1, Background Soil, Apr
- Final Risk Based Evaluation Procedures Manual Module 1, Background Soil, Apr
- Draft Final Risk Based Evaluation Procedures manual Module V, Tier I, Apr
- Draft Final Risk Based Evaluation Procedures Manual Module V, Tier II, Apr
- SWMU-91 – Draft Final Phase I RFI Report, Former Used/Waste Oil Tank – Bldg. 9628, May
- SWMU-85 – Draft Final Phase I RFI Report, Former Used/Waste Oil Tank – Bldg. 8930, May
- Final Quarterly Monitoring Report, 4th Quarter 2003 ICP, May
- Draft Final Construction Completion Report, Former Landfill 6 Waste Relocation, May
- Final RFI Work Plan Addendum, Landfill 2, May
- Draft Final Interim Remedial Action, Source Removal Work Plan, Grit/Oil Pit, May
- Draft Final Letter Work Plan, Remedial Action at Range 123, May
- Draft Final RFI CLA, Jun
- Draft Process Unit Demolition Report, Sewage Treatment Plant, Jun
- Final Letter Work Plan Addendum, Land Spreading Field, Jun
- Draft Final RFI Report Addendum, Sludge Trench Pit, Jun

2005

- Final Letter Work Plan Addendum – Bldg. 301, April
- Final Letter Work Plan Addendum – Bldg. 2840, April
- Revised NFA Request, Range 123, April
- Final Supplemental RFI Work Plan, Building 8000 – Former Waste Oil/Solvent Underground Storage Tanks, April
- Draft Final Letter RFI Workplan Addendum, former POW Camp, April
- Final Quarterly Monitoring Report, 1st Quarter 2005 ICP, August
- Draft Final Groundwater & Soil Gas Monitoring Report, 1st Semiannual Report 2005, LF5, August
- Draft Final RFI Report, Landfill 9, August
- Final Former Grit/Oil Pit Interim Remedial Action Summary Report, August
- Draft Final Letter Work Plan Addendum, Bldg 3092, August
- Draft Final Letter Work Plan Addendum, Bldg 3192, August
- Final Letter Work Plan Addendum, Bldg 3292, August
- Final Letter Work Plan Addendum, Bldg 1392, August
- Draft Final RFI Report – Bldg 2427, August
- Final Letter Work Plan for Statewide Groundwater Monitoring Event, August
- Final Quarter Monitoring Report, 2nd Quarter 2005 ICP, December

2005 (cont.)

- Draft Final Quarterly Monitoring Report, 3rd Quarter 2005 ICP, December
- Final CMS Work Plan, BECS, December
- Final Letter Work Plan, Former Building 523/Building 501, December
- RFI Summary for SWMU 65, Bldg 1982, December
- Final RFI Report – Bldg 1982, December
- Draft Final RFI Report, Rev. 1 – Bldg 2492
- Final RFI Report, Bldg 2492
- Draft Final Supplemental RFI Letter Work Plan, Old Central Wash Rack, December
- Risk Module III, 2005 Annual Update, December
- Draft Final ET Cap Annual Performance Monitoring Report for 2004, LF5, February
- Draft Final Groundwater & Soil Gas Monitoring Report, 2nd Semiannual Report 2004, LF5
- Final RFI Report and QCSR, Landfill 11, February
- Final RFI Report, Former Used/Waste Oil Tank – Bldg 635, February
- Final Letter Work Plan Addendum – Bldg 2434, February
- Draft Final RFI Report – Bldg 2492, February
- Final RFI Report – Bldg 2692, February
- Draft Final RFI Report – Bldg 2735, February
- Final Letter Work Plan Addendum – Bldg 2792, February
- NFA Request, Range 123, February
- Draft Final Supplemental Indoor Air Assessment Letter Work Plan, February
- Draft Final Risk-Based Evaluation Procedures Manual, Module V, Ecological Risk Procedures Manual, February
- Interim Final Risk-Based Evaluation Procedures Manual, Module V, Ecological Risk Procedures Manual, February
- Interim Final Risk-Based Evaluation Procedures Manual, Module IV, Methodology for Identifying No Further Action at Solid Waste Management Units, February
- Final Quarterly Monitoring Report, 3rd Quarter 2004 ICP, January
- Final Quarterly Monitoring Report, 2nd Quarter 2004 ICP, January
- LF5 ET Cap Monthly Performance Monitoring CAs Summary, January
- NFA Request Addendum, Range 1A, January
- CDPHE Approval of NFA Request and Addendum, Range 1A, January
- Draft Final RFI Report, Bldg 1302, January
- Final Letter Work Plan Addendum – 1692, January
- Final Letter Work Plan Addendum – Bldg 1382
- Draft Final RFI Report – Bldg 1982, January
- Final RFI Report – Bldg 8300, January
- Final RFI Work Plan, Golf Course Sewage Treatment Plant Effluent and Sludge Spreading Area, January
- Final RFI Report, Land Spreading Field, January
- Draft Final RFI Report, Bldg. 1211, January
- Draft Final CMS Work Plan, BECS, July
- Draft Final RFI Report – Bldg 2392, July
- Final Letter Work Plan Addendum – Bldg 9072, July

2005 (cont.)

- Draft Final Letter Work Plan Addendum – Bldg 9609, July
- Draft Final Letter Work Plan Addendum – Bldg 1392, July
- Draft Final RFI Report, Gold Course Holding Pond, July
- Draft Final Quarterly Monitoring Report, 1st Quarter 2005 ICP, June
- Draft Final RFI, Landfill 2, June
- Final Construction Completion Report, Former LF6 Waste Relocation, June
- Draft Final Former Grit/Oil Pit Interim Remedial Action Summary Report, June
- CMS Work Plan Technical Memorandum, June
- Draft Final Letter Work Plan Addendum – Bldg 3292, June
- Draft Final Letter Work Plan Addendum – Bldg 9072, June
- Final Phase I RFI Report, Former Used/Waste Oil Tank – Bldg 9628, June
- Final RFI Report – Rev. 1, Land Spreading Field, June
- Interim Final Risk-Based Evaluation Procedures Manual, Module VI, Methodology for Identifying No Further Action at Solid Waste Management Units, June
- Final Risk-Based Evaluation Procedures Manual, Module VI, Methodology for Identifying No Further Action at Solid Waste Management Units, June
- Draft Final Quarterly Monitoring Report, 4th Quarter 2004 ICP, March
- Final Groundwater & Soil Gas Monitoring Report, 1st Semiannual Report 2004, LF5, March
- Final Groundwater & Soil Gas Monitoring Report, 2nd Semiannual Report 2004, RF5, March
- Final Existing Cover Evaluation Work Plan, Landfill 8, March
- Final RFI Report, Rev. 1, BECS, March
- Draft Final Letter Work Plan Addendum – Bldg 2840, March
- Final Supplemental Indoor Air Assessment Letter Work Plan, March
- Final Rev. 1 Risk Based Evaluation Procedures Manual Module V, Tier II, March
- Final Quarterly Monitoring Report, 4th Quarter 2004 ICP, May
- Final ET Cap Annual Performance Monitoring Report for 2004, LF5, May
- CDPHE Approval of NFA Request and Revised Request, Range 123, May
- Final RFI Report, May
- Final Letter RFI Workplan Addendum, former POW Camp, May
- Draft Final, RFI Report – Bldg 1382, November
- Draft Final, RFI Report – Bldg 2940, November
- Draft Final, RFI Report – Bldg 2992, November
- Draft Final, RFI Report – Multi-Purpose Range Complex, November
- Draft Final, RFI Report – Bldg 639, November
- Risk Module IV (GPLs), 2005 Annual Update, November
- Final Groundwater & Soil Gas Monitoring Report, 1st Semiannual Report 2005, LF5, October
- Draft Final CMS Work Plan, Rev. 1, BECS, October
- Draft Final Letter Work Plan, Former Bldg 523/Bldg 501, October
- Draft Final Letter Work Plan Addendum – Bldg 3874, October
- Final RFI Report – Bldg 2427, October
- Draft Final Quarterly Monitoring Report, 2nd Quarter ICP, September

2005 (cont.)

- Annual Groundwater Monitoring Data for Range 121 Open Detonation Grounds and Open Dumping Area, September
- Draft Final RFI Report – Bldg 2392, September
- Final Phase I RFI Report, Former Used Waste Oil Tank – Bldg 2239, September
- Final RFI Report – Bldg 2392, September
- Final Letter Work Plan Addendum – Bldg 3092, September
- Final Letter Work Plan Addendum – Bldg 3192, September
- Final Letter Work Plan Addendum – Bldg 9609, September
- Final Risk-Based Evaluation Procedures Manual, Module VI, Methodology for Identifying No Further Action at Solid Waste Management Units, Revision 1, September

2006

- Final Quarterly Monitoring Report, 3rd Quarter 2005 ICP, February
- Methane Gas Evaluation Letter Work Plan for Former Landfill 2/3, February
- Draft Final Landfill 5 ET Cap Annual Performance Monitoring Report, February
- Draft Final Range 1 Soil RFI Report (text only), February
- Draft Final RFI Report Bldg 301, February
- Draft Final RFI Report, Rev. 1 – Bldg 8152, February
- Final Supplemental Letter Work Plan, Bldg. 1211, February
- Draft Final RFI Report – Building 1692, January
- Draft Final Supplemental Letter Work Plan, Bldg 1211, January
- Final Risk-Based Evaluation Procedures Manual, Module III (2005 Annual Update), Rev. 1, January
- Final Risk-Based Evaluation Procedures Manual, Module IV (2005 Annual Update), Rev. 2, January
- Final (Rev 2) Risk-Based Evaluation Procedures Manual, Module IV (2005 Annual Update) Development of Groundwater Protection Levels, January
- Draft Final Quarterly Monitoring Report, 4th Quarter 2005 ICP, March
- Draft Final CMS Work Plan, Landfill 1 and CDDL, March
- Draft Final Groundwater & Soil Gas Monitoring Report, 2nd Semiannual Report 2005, LF5, March
- Draft Final CMS Work Plan, Landfill 7 and Pete's Hill Dump, March
- Draft Final CMS Work Plan, Combined Landfill Area, March
- Final RFI Report, Bldg 2940, March
- Draft CMS Work Plan – Bldg 8300, March
- Draft Final Supplemental RFI Letter Work Plan, Old Central Wash Rack, Revision 1, March
- Draft Final CMS Work Plan for North Specker Avenue, March
- Final Supplemental Letter Work Plan, Former POW Camp, March
- Draft Final Risk-based Evaluation Procedures Manual, Module V, Development of Ecological Screening Values, March

FORT CARSON

Installation Restoration Program Site Descriptions

SWMU 2/3 (FTC-006) LANDFILL 2/3 (1957-1978)

SITE DESCRIPTION

Landfills 2 and 3 (SWMUs 2/FTC-006 & 3/FTC-007) were combined for tracking purposes under FTC-006, and are former contiguous landfills located east of the Cantonment Area that were operated from 1957 to 1978. This landfill was properly closed in accordance with solid waste regulations at the time landfill operations ceased. The RFA conducted in 1994 then identified this site for inclusion in the RCRA Part B permit. Therefore, all investigation and remediation is being conducted under the Corrective Action Program. Waste at this site consists of sanitary waste, sludges from multiple sources, waste petroleum, oil, and lubricants (POL), cinder ash and, potentially, explosives and UXO. A combined trench and area fill method was used at this 80-acre site. Part of the landfill (~50 acres) is currently covered with a soil cover.

Surface water control measures were installed in 1992. Grading activities were conducted in 1998 and 2000 to further control surface water.

Groundwater monitoring results indicate that no significant impacts to the surrounding environment have resulted from the past landfill 2 operations. Methane levels at the unit boundary in one permanent soil gas probe were detected above the 5% permitted under Solid Waste Regulations.

The RFI report was approved in November 2005, a CMS was imposed and request for further delineation of methane at one soil gas monitoring probe. The Draft Final Methane Evaluation Letter Work Plan was submitted to CDPHE in February 2006. The methane evaluation and installation of additional permanent probes, if necessary, will be performed in 2006. A methane monitoring plan will also be submitted pending results of the methane evaluation. Quarterly soil gas monitoring of existing permanent probes and annual groundwater monitoring is currently being performed.

CLEANUP STRATEGY

CTC ASSUMPTIONS: Implement a CMS in FY09. Implement remedy in FY10 (assumed design and construction of a 2-ft thick 50-acre ET cap and a 4-ft thick 30-acre ET cap). Perform long-term management (minor cap maintenance and groundwater/soil gas monitoring specific to known constituents).

STATUS

REGULATORY DRIVER: RCRA

RRSE: Medium

CONTAMINANTS OF CONCERN:
VOCs, Inorganics

MEDIA OF CONCERN:
Soil, Groundwater

PHASES	Start	End
RFA	198210	198301
CS	199503	199811
RFI/CMS	199605	201010
DES	200910	201010
IRA	199209	199212
CMI(C)	201010	201109
LTM	201110	204110

RC DATE: 201109

SWMU 4 (FTC-008) LANDFILL 4 (1957)

SITE DESCRIPTION

Landfill 4 (SWMU 4) is located in the northeast section of the Cantonment Area. According to historical records, Landfill 4 covered approximately 14 acres. The landfill was excavated into the alluvium and operated for about 6 months in 1957 to receive construction debris, sanitary wastes and possibly small amounts of sludge and waste petroleum, oil, and lubricants. The presence of shallow groundwater (less than 5 feet) forced the landfill to be abandoned. The Defense Reutilization and Marketing Office Storage Yard (FTC-024, SWMU 50) was subsequently built over the former landfill. This landfill was properly closed in accordance with solid waste regulations at the time landfill operations ceased. The RFA conducted in 1994 then identified this site for inclusion in the RCRA Part B permit. Therefore, all investigation and remediation is being conducted under the Corrective Action Program.

Groundwater monitoring indicated metals and VOCs below CGWS in the vicinity of this site.

In 2002, an existing well was over drilled to collect samples of the PVC casing for analysis of vinyl chloride to determine if the well casing was degrading and the cause of vinyl chloride in groundwater. Analytical results indicated concentrations below the laboratory practical quantitation limits.

The RFI Report (Revision 2) was approved in October 2003 and no CMS was imposed. Annual groundwater monitoring and inspections of the asphalt cover are currently being performed.

CLEANUP STRATEGY

FUNDED: A maintenance and monitoring plan, to include a risk evaluation, will be developed for the site (funded in FY03 [risk evaluation and construction completion report] and FY06 [monitoring and maintenance plan]).

CTC ASSUMPTIONS: Perform long-term management for both the groundwater and asphalt cover.

[Note: Installation-wide programmatic costs are also accounted for at this site. These include perimeter monitoring wells, field trailer, well abandonment, technical support, and annual updates of risk assessment modules.]

STATUS

REGULATORY DRIVER: RCRA

RRSE: Low

CONTAMINANTS OF CONCERN: VOCs, Inorganics

MEDIA OF CONCERN: Soil, Groundwater, Surface Water

PHASES	Start	End
RFA	198210	198301
CS	199503	199812
RFI/CMS.....	199810	200409
LTM	200410	203410

RC DATE: 200409

SWMU 5 (FTC-009)

LANDFILL 5 (1946-1956) (PAGE 1 OF 2)

SITE DESCRIPTION

Landfill 5 (SWMU 5) is an abandoned landfill located in the northeast corner of the Cantonment Area, close to the installation boundary, covering ~20 acres. It was operated from 1946 to 1956. Historical records indicate that accepted wastes included construction debris, mixed sanitary waste, waste POL, waste from the old mule barn area, coal cinders and ash. This landfill was properly closed in accordance with solid waste regulations at the time landfill operations ceased. The RFA conducted in 1994 then identified this site for inclusion in the RCRA Part B permit. Therefore, all investigation and remediation is being conducted under the Corrective Action Program. The RFI report was approved by CDPHE in September 2001.

A composite cap (IRA) with an asphalt surface was installed in fall 1999 over 5 acres of the site to manage stormwater runoff and facilitate vehicle parking for the 96th ARCOM. In 2000, an evapotranspiration (ET) cap (IRA) was installed over 15 acres and upgradient and downgradient wells were installed. Moisture monitoring at the ET cap continues to show performance above expectations.

Elevated levels of methane have been detected in soil gas probes east of the motorpool cap. However, wind-driven turbines placed on select gas probes have been effective in venting the elevated levels. New soil gas monitoring probes were installed in August 2004 and are sampled quarterly in accordance with the approved Corrective Action Work Plans.

The ET Cap was approved by CDPHE in November 2004, following additional soil classification and cap installation investigation activities. In December 2004, the CDPHE approved the Final Initial Groundwater Investigation Summary Report. No CMS was imposed, acknowledging that Landfill 5 has not contributed to groundwater contamination above screening levels downgradient of the landfill.

As a result, this SWMU has completed the remedy phase of corrective action and is now undergoing the long-term management phase. In October 2005, a 5-year review of the monitoring and maintenance results since 2000 were evaluated with CDPHE and revisions were made to the long-term monitoring and maintenance Work Plans.

STATUS

REGULATORY DRIVER: RCRA

RRSE: Medium

CONTAMINANTS OF CONCERN:
VOCs, Inorganics

MEDIA OF CONCERN:
Soil, Groundwater, Surface Water

PHASES	Start	End
RFA	198210	198301
CS	199503	199707
RFI/CMS	199605	200412
IRA	199805	200010
LTM	200412	203010

RC DATE: 200412

SWMU 5 (FTC-009)

LANDFILL 5 (1946-1956) (PAGE 2 OF 2)

During construction of the respective landfill caps, two groundwater seeps were located in the southern portion of the landfill. French drains were constructed to drain the seep water away from the landfill during construction. One seep is located beneath the evapotranspiration cap and one seep is located beneath the geotextile cap. The French drain located beneath the evapotranspiration cap was extended to the adjacent surface drainage (B-Ditch) to allow the groundwater seep to discharge as Outfall No. 006 under NPDES Permit No. CO-0034771. Since construction of the respective caps, weekly inspections of the condensate vault for the geotextile cap gas collection system have observed large quantities of water that do not appear to be solely attributed to condensate. Based on the quantity and flow, it is believed that the water entering the system is groundwater from the seep, the same groundwater that is discharged from Outfall No. 006. Therefore, in July 2005, Fort Carson recommended that the existing French drain at the geotextile cap be reconnected and allowed to discharge to B-Ditch as a second outfall at Landfill 5 under the existing NPDES permit. EPA approved the request in March 2006 and the revised permit will be effective from April 1, 2006 to March 21, 2011.

CLEANUP STRATEGY

CTC ASSUMPTIONS: Perform long-term management (minor cap maintenance and groundwater monitoring) in accordance with the approved Corrective Action Work Plans.

SWMU 7 (FTC-011)

LANDFILL 7 (1968-1978)

SITE DESCRIPTION

Landfill 7 (SWMU 7) is an inactive landfill located within the Landfill 1 certificate of designation and has been included as part of the Combined Landfill Area (CLA) investigation. It operated as a canyon fill landfill from 1968 to 1978, accepting construction debris and other material. The total area of the landfill is six acres, which currently has a soil cover. This landfill was properly closed in accordance with solid waste regulations at the time landfill operations ceased. The RFA conducted in 1994 then identified this site for inclusion in the RCRA Part B permit. Therefore, all investigation and remediation is being conducted under the Corrective Action Program. The CLA RFI Report was submitted to CDPHE in June 2004 and approved in August 2004, at which time a CMS was imposed. The Draft Final CMS Work Plan was submitted to CDPHE in March 2006.

CLEANUP STRATEGY

FUNDED: Conduct a CMS in FY06 (funded in FY05 and FY06).

CTC ASSUMPTIONS: This SWMU will undergo interim management (to include groundwater monitoring and cover maintenance) until site closeout.

Selected remedy is assumed to be design and construction of a six-acre, 2-foot thick ET Cap. Perform long-term management (cap maintenance and groundwater monitoring as part of the CLA).

STATUS

REGULATORY DRIVER: RCRA

RRSE: Low

CONTAMINANTS OF CONCERN:
None

MEDIA OF CONCERN:
Soil, Groundwater, Surface Water

Phases	Start	End
RFA	198210	198301
CS	199810	199812
RFI/CMS.....	200312	200610
DES.....	200610.....	200710
CMI(C)	200710	200810
LTM	200810	203710

RC DATE: 200810

SWMU 8 (FTC-012) LANDFILL 8 (1972-1973)

SITE DESCRIPTION

Landfill 8 (SWMU 8) consists of two canyon fill landfills, which operated from 1972 to 1973. These areas total ~13 acres and received construction and demolition debris. This landfill was properly closed in accordance with solid waste regulations at the time landfill operations ceased. The RFA conducted in 1994 then identified this site for inclusion in the RCRA Part B permit. Therefore, all investigation and remediation is being conducted under the Corrective Action Program and in accordance with Subtitle D regulations. This landfill is located directly north of Landfill 2/3 (SWMU 2/3). RFI fieldwork activities were conducted in 2002 and included trenching, soil gas monitoring, and groundwater monitoring well installation (all dry).

RFI data demonstrates minimal impacts to soil, groundwater and surface water. However, VOCs below CGWS have been detected in two downgradient wells.

The RFI Report was submitted in July 2003 and approved in June 2004. A CMS was not imposed for this SWMU, however, a presumptive remedy will be based on an evaluation of cover thickness and mitigate storm water runoff at the landfill. A work plan detailing the cover evaluation was approved by CDPHE in March 2005. The cover evaluation was performed in late 2005 and the Cover Evaluation Summary report, which will include a risk evaluation, will be submitted to CDPHE in May 2006.

CLEANUP STRATEGY

FUNDED: A basis for presumptive remedy selection, including risk evaluation will be prepared for the site in May 2006.

CTC ASSUMPTIONS: Remedy will include erosion control and construction of a 10-acre cover. Perform long-term management (minor maintenance of the cover and thirty years groundwater monitoring).

STATUS

REGULATORY DRIVER: RCRA

RRSE: Low

CONTAMINANTS OF CONCERN: VOCs

MEDIA OF CONCERN: Soil, Groundwater, Surface Water

Phases	Start	End
RFA	198210	198301
CS.....	199805	199912
RFI/CMS	199910	200609
DES	200710	200810
CMI(C)	200810	200910
LTM	200910	203810

RC DATE: 200910

SWMU 9 (FTC-013)

LANDFILL 9 (1965-1973)

SITE DESCRIPTION

Landfill 9 (SWMU 9) is a 6.5 acre, abandoned landfill located south of the Cantonment Area. The specific nature of activities conducted during the landfill's period of operation (1965 to 1973) is unknown, but most likely consisted of receiving construction debris. This landfill was properly closed in accordance with solid waste regulations at the time landfill operations ceased. The RFA conducted in 1994 then identified this site for inclusion in the RCRA Part B permit. Therefore, all investigation and remediation is being conducted under the Corrective Action Program.

Two temporary wells were installed downgradient of the landfill during the RFA. Groundwater samples collected from these wells contained metals below CGWS, but above interim background levels established at the time.

The RFI work plan was submitted to CDPHE in January 2004, approved in August 2004, and implemented between October 2004 and February 2005. Fieldwork included the installation of monitoring wells and soil gas probes, groundwater, sediment, surface water and leachate sampling, and a geophysical survey (EM-31/61) and confirmatory trenching to define landfill boundaries. The RFI Report was submitted to CDPHE in August 2005 and will be finalized in Spring 2006. Results of soil gas monitoring performed two quarters following completion of the RFI fieldwork to fulfill one year of monitoring did not detect landfill gases. Annual groundwater monitoring of surrounding wells is currently being performed.

CLEANUP STRATEGY

FUNDED: A basis for presumptive remedy selection (to include a soil cover evaluation work plan and field work), including risk evaluation and final report will be developed for the site pending CDPHE approval of the RFI.

CTC ASSUMPTIONS: Remedy will include design and construction of a 2-ft thick 7.5-acre cover. Perform long-term management (minor maintenance of the cover and groundwater monitoring) for thirty years.

STATUS

REGULATORY DRIVER: RCRA

RRSE: Medium

CONTAMINANTS OF CONCERN:
VOCs, Inorganics

MEDIA OF CONCERN:
Soil, Groundwater, Surface Water

Phases	Start	End
RFA.....	198210	198301
CS.....	199801	199901
RFI/CMS	200210	200709
DES	200710	200810
CMI(C)	200810	200910
LTM.....	200910	203810

RC DATE: 200910

SWMU 13 (FTC-020) GRIT/OIL PIT

SITE DESCRIPTION

The Grit/Oil Pit (SWMU 13) is located within the Landfill 1 certificate of designation and has been included as part of the Combined Landfill Area (CLA) investigation. This site was an open pit where Fort Carson deposited the material from the vehicle wash facilities, and the Industrial and Sanitary Wastewater Treatment Plant sludge, and was in operation from 1960s to 1992. The material was placed in a trench measuring 240 x 60 x 30 ft. This site was included in both the 1994 and 1997 Compliance Orders on Consent.

Samples indicated the presence of metals, VOCs (including TCE, and vinyl chloride), BTEX, and PAHs in the sludges, surrounding soil and in leachate/groundwater immediately downgradient of the site.

In 1998, a surface water control measure (temporary cap) was placed over the pit to reduce the infiltration of surface water. In 1999, water and product removal commenced and were successful in removing the oily product from the pit. The RFI was approved by CDPHE in March 2000 and in 2002, a SVE pilot test was completed and considered moderately successful in reducing the concentrations of VOCs in the pit material.

In July 2004, CDPHE approved an Interim Measure Source Removal Workplan and the contents of the Grit/Oil Pit were subsequently removed between November 2004 and January 2005. Analytical results of the confirmatory soil samples collected from the excavation following removal were below Fort Carson site-specific risk-based screening levels.

The Draft Final CMS Work Plan for impacts to groundwater was submitted CDPHE in March 2006. The Grit/Oil Pit is currently undergoing interim monitoring until the site is closed out.

CLEANUP STRATEGY

FUNDED: Conduct a CMS in FY06 (funded in FY03 and FY05).

CTC ASSUMPTIONS: Implement selected remedy in FY08. Assume in-situ groundwater treatment. Perform long-term management (groundwater monitoring as part of the CLA).

STATUS

REGULATORY DRIVER: RCRA

RRSE: Medium

CONTAMINANTS OF CONCERN:
VOCs, SVOCs, Metals

MEDIA OF CONCERN:
Soil, Groundwater, Surface Water

PHASES	Start	End
RFA	198803	198804
CS	199511	199901
IRA	199909	200509
RFI/CMS	199511	200709
DES	200510	200809
CMI(C)	200510	200809
CMI(O)	200710	201009
LTM	201010	201510

RIP DATE: 200710

RC DATE: 201009

SWMU 14 (FTC-026) PETE'S HILL DUMP

SITE DESCRIPTION

Pete's Hill Dump (SWMU 14) is an inactive ~13.5-acre landfill located within the Landfill 1 certificate of designation and has been included as part of the Combined Landfill Area (CLA) investigation. From sometime before 1976 to the early 1990s, waste and construction debris were dumped over the head wall of a box canyon. Records indicate that the site received construction debris, municipal waste and wash rack residuals. In 1992/93, the area was re-contoured and covered to control surface water. Preliminary RFI activities were conducted in 2002.

Monitoring wells installed downgradient of Pete's Hill have detected metals above background levels but below groundwater standards.

The CLA RFI Report was submitted to CDPHE in June 2004 and approved in August 2004, at which time a CMS was imposed.

This site is currently undergoing interim monitoring until closure of the site. The CMS Work Plan was submitted to CDPHE in March 2006.

CLEANUP STRATEGY

FUNDED: Conduct a CMS in FY06 (funded in FY05 and FY06).

CTC ASSUMPTIONS: This SWMU will undergo interim management (to include groundwater monitoring and cover maintenance) until site closeout.

Selected remedy is assumed to be design and construction of a 14-acre, two-foot thick ET cap. Perform long-term management (minor cover maintenance and groundwater monitoring as part of the CLA).

STATUS

REGULATORY DRIVER: RCRA

RRSE: Low

CONTAMINANTS OF CONCERN:
Metals

MEDIA OF CONCERN:
Soil (landfill material), Groundwater

PHASES	Start	End
RFA	198803	198804
IRA	199309	199509
RFI/CMS.....	200312	200610
DES.....	200610.....	200710
CMI(C)	200710	200810
LTM	200810	203710

RC DATE: 200810

SWMU 16 (FTC-058)

VAPOR DEGREASER SITE, BLDG 8000

SITE DESCRIPTION

The Vapor Degreaser (SWMU 16) operated from the mid-1970s until 1992, when it was removed. Maintenance personnel used the vapor degreaser to clean parts with either TCE or 1,1,1-Trichloroethane (VOCs). The stainless steel vapor unit was located in a 7-foot deep concrete lined pit. The pit, located in Building 8000, is currently covered by a grate and used to control the wash water generated from general housekeeping activities within Building 8000 and the wash water that drips from the nearby Jet Spray Washers (FTC-058/SWMU 17).

Chlorinated VOCs have been detected in the soil below the pit in sampling events between 1992 and 1996, but groundwater was not encountered during the RFI activities. After the first phase of the RFI, CDPHE requested additional soil samples below the sump area. In November 1999, additional soil samples were taken and the sump and contaminated soil were removed. The sump excavation was backfilled with clean gravel and covered with concrete. During site restoration, two temporary wells were installed within the former sump excavation.

In 2001, water trapped in the former sump excavation was sampled and purged (total of 119 gallons) on a quarterly basis to determine if shallow groundwater or residual liquid was the source of the water. Due to fluctuating concentrations of chlorinated solvents and the volume of water purged each quarter, Fort Carson was unable to discern if the source of the water was groundwater or residual wastewater.

The RFI report was submitted to the CDPHE in October 2002 and approved in November 2002, at which time a CMS was imposed.

Since the Building 8000 complex is still undergoing extensive investigation, it was requested that the CMS for the Vapor Degreaser be extended until the surrounding area has been better characterized. This request was granted by CDPHE in May 2005 for one year.

CLEANUP STRATEGY

FUNDED: The CMS will be performed collectively with SWMU 53 (CMS Work Plan and data gap fieldwork only funded in FY03).

CTC ASSUMPTIONS: Prepare permit modification and perform groundwater monitoring. The corrective measure will be funded under SWMU 53.

STATUS

REGULATORY DRIVER: RCRA

RRSE: Medium

CONTAMINANTS OF CONCERN:
VOCs

MEDIA OF CONCERN:
Soil, Groundwater

PHASES	Start	End
RFA.....	198210	198301
CS.....	199503	199812
IRA.....	199910	199912
RFI/CMS	199801	200609
LTM.....	200609	201110

RC DATE: 200609

SWMU 18 (FTC-079) SLUDGE TRENCH/PIT

SITE DESCRIPTION

The Sludge Trench/Pit (SWMU 18) was an unlined pit that received waste sludge from the Industrial Wastewater Treatment Plant (IWTP) (SWMU 21) ponds upon approval from CDPHE. The sludge consisted primarily of oily sand, silt, and clay. In 1985, CDPHE approved the request for 2,300 cubic yards of IWTP sludge to be disposed in the pit.

A groundwater investigation was conducted in September 1996 (Letter Report for Relative Risk Groundwater Sampling of Selected Sites). Groundwater was not encountered.

In June 1997, a hand auger sample was collected to characterize the contents of the pit. Results indicated petroleum hydrocarbons and metal contaminants. No VOCs were detected.

As part of the RFI pre-characterization sampling activities were conducted in March and April 2001 to provide aerial extent, depth to and thickness of the sludge materials. In August 2001, approximately 16,530 bcy of soil/sludge was removed. Low levels of petroleum hydrocarbons were detected and elevated levels of oil and grease were identified. Other than one estimated concentration of methylene chloride, a common laboratory contaminant, no additional organics were identified. The Draft Final RFI Report was submitted to CDPHE in December 2002. In 2003, the SWMU was included in the Combined Landfill Area (CLA). Therefore, an addendum to the existing RFI Report was submitted in June 2004. The addendum summarized the additional data collected from the site during the CLA investigation. The December 2002 RFI Report and June 2004 RFI Report Addendum were approved by the CDPHE in June 2004. A CMS was not imposed for this site.

CLEANUP STRATEGY

FUNDED: Perform risk evaluation (not including eco) with an NFA request. (funded in FY04/05)

STATUS

REGULATORY DRIVER: RCRA

RRSE: Low

CONTAMINANTS OF CONCERN:
TPH, Metals

MEDIA OF CONCERN:
Soil

PHASES	Start	End
RFA.....	199402	199405
CS.....	199810	199907
IRA.....	200107	200110
RFI/CMS	200310	200409
LTM.....	200410	200709

RC DATE: 200409

SWMU 19 (FTC-047) LAND SPREADING FIELD

SITE DESCRIPTION

The Land Spreading Field (SWMU 19) site is an open area ~2 acres in size where digested sewage sludge from the Sewage Treatment Plant (STP) was placed into three bermed areas. Some of this sludge may have been spread and tilled into the soil around the lagoons. The Land Spreading Field is located east of Landfill 1 (FTC-005). Operations began in the early 1980s and continued until 1988. During multiple site visits, considerable evidence of black organic soils and trash were observed. Samples collected from the STP indicated that low levels of metals were present in the sludge.

A number of groundwater monitoring wells located west of the Land Spreading Field have been historically dry.

A RFI work plan was submitted to CDPHE in January 2002. RFI activities included the collection of soil samples and the installation of temporary wells in and around the three bermed areas. Limited concentrations of semi-volatile organic compounds and inorganics above risk based concentration and groundwater protection levels were detected in shallow soil samples. No groundwater was encountered for sampling.

The Draft Final RFI Report was submitted in February 2004. Based on CDPHE review, additional fieldwork was performed between June and August 2004, which included the installation of one downgradient monitoring well, groundwater sampling, soil removal and additional soil sampling. Results of the additional fieldwork identified that a pathway to groundwater is not evident at the site and that the excavation effort successfully removed two isolated areas exhibiting elevated levels of inorganics and benzo(a)pyrene. The revised RFI Report was submitted to CDPHE in June 2005 and approved in July 2005. No CMS imposed.

CLEANUP STRATEGY

FUNDED: Perform risk evaluation with NFA request (funded in FY06).

STATUS

REGULATORY DRIVER: RCRA

RRSE: Low

CONTAMINANTS OF CONCERN:
Metals

MEDIA OF CONCERN:
Soil

Phases	Start	End
RFA.....	198210	198301
CS.....	199802	199812
RFI/CMS	199906	200510
LTM.....	200510	200710

RC DATE: 200510

SWMU 24 (FTC-021/022)

FIRE TRAINING AREA AND FIRE TRAINING STORAGE AREA (PAGE 1 OF 2)

SITE DESCRIPTION

This site (SWMU 24) consists of both the Fire Training Area (FTC-021) and Fire Training Storage Area (FTC-022). The two sites were combined under one AEDB-R number because they are contiguous sites.

FTC-021 was a 60 x 60 x 3 ft deep concrete basin (which was removed in 1996) located at the east end of Butts Army Airfield. Burns were conducted from the 1960s to 1993. The water and fire-retardant chemicals used in the exercises were discharged to an oil/water separator, which discharged to the adjacent sewage treatment lagoon (FTC-039).

The former storage area (FTC-022), where off-specification/waste fuels were stored for exercises at the adjacent fire training area, was used from the 1970s to 1992. The storage area is located immediately east of the former Fire Training Area.

In 1992, the U.S. Army Corps of Engineers Research Laboratories (CERL) conducted a sludge study. Samples collected from the oil/water separator detected metals, chlorinated VOCs (solvents), and TPH. The oil/water separator was removed in 2000. Additional soil and groundwater samples taken in 1995-2000 indicated PCE above CGWS (5ug/L) in several wells located up to 500 ft downgradient from the storage area.

In 2001, removal of the oil/water separator, separator contents and surrounding shallow soil was completed. Leaks were detected in the piping between the concrete structure and the oil/water separator resulting in solvent and POL-contaminated soil still at the site. In 2001, 2002, and 2003, additional soil and groundwater samples were collected at the site to address CDPHE comments on the RFI report.

This site has been combined with the nearby Sewage Treatment Lagoons (SWMU 23/FTC-039) under one investigation, which is referred to as the Butts East Combined Sites (BECS) investigation. The BECS RFI was approved by CDPHE in April 2005 and a CMS imposed.

STATUS

REGULATORY DRIVER: RCRA

RRSE: Medium

CONTAMINANTS OF CONCERN:
VOC's, POL

MEDIA OF CONCERN:
Soil, Groundwater

Phases	Start	End
RFA.....	198803	198804
CS.....	199504	199810
RFI/CMS	199605	200710
DES	200710	200810
IRA.....	200106	200108
CMI(C)	200710	200810
CMI(O)	200710	201010
LTM.....	201010	201510

RIP DATE: 200710

RC DATE: 201010

SWMU 24 (FTC-021/022) FIRE TRAINING AREA AND FIRE TRAINING STORAGE AREA (PAGE 2 OF 2)

CLEANUP STRATEGY

The CMS Work Plan was submitted to CDPHE in July 2005 and approved on December 30, 2005. Remedy-specific data gap fieldwork was performed in March 2006 and the Pilot Study Work Plan will be submitted to CDPHE in summer 2006.

FUNDED: Perform CMS in FY07 (funded in FY05 and FY06).

CTC ASSUMPTIONS: Implement selected remedy in FY08. Assume in situ groundwater treatment. Continue to monitor groundwater.

SWMU 27 (FTC-044)

DRAINAGE DITCH ADJACENT TO BUILDING 301

SITE DESCRIPTION

Drainage from a wash rack and garage at Building 301 was discharged through underground pipes that emptied into this drainage ditch (SWMU 27) from the 1950s to 1981. This ditch drains to B Ditch.

Samples were collected from groundwater, surface water and sediment. Sampling results have not indicated any constituents of concern above groundwater standards, but low levels of VOCs (PCE) were detected.

The Revised RFI Report was approved by CDPHE in 2002 and no CMS imposed.

CLEANUP STRATEGY

Perform a risk evaluation with NFA Request (funded in FY02).

STATUS

REGULATORY DRIVER: RCRA

RRSE: Low

CONTAMINANTS OF CONCERN:
VOCs

MEDIA OF CONCERN:
Soil, Groundwater, Surface Water

Phases	Start	End
RFA.....	198803	198804
CS.....	199503	199901
RFI/CMS	199901	200410

RC DATE: 200412

SWMU 29 (FTC-045A)

BATTERY NEUTRALIZATION SHOP, BLDG 8030

SITE DESCRIPTION

A total of three Battery Shops exist as SWMUs at Fort Carson: SWMU 28/FTC-045B—Building 8000, SWMU 29/FTC-045A – Building 8030, and SWMU 30/FTC-045C—Building 8142. The shop at Building 8030 (SWMU 29) operated from approximately 1980 to 1993. Electrolytes from batteries were discharged into a floor drain. The drain leads to a holding/neutralization tank where the electrolyte was neutralized with sodium bicarbonate before being discharged to the industrial wastewater system. In 1993, the area around the floor drain was excavated to repair the drain. However it was not possible to repair the drain, as the drain was plugged. The shop room is currently utilized as a break room.

The soil samples collected in 1999 contained inorganics above interim background levels. A few hydrocarbon compounds were also detected in soil samples at low concentrations.

Groundwater was not encountered in the wells installed for the RFI at this site. The sump was sampled in 2001, and cleaned and decontaminated in 2002.

The RFI report (for all three SWMUs) was submitted to CDPHE in 2001 and approved in 2002. No CMS imposed.

CLEANUP STRATEGY

FUNDED: Perform a risk evaluation (excluding groundwater) with NFA request (funded in FY02 and FY05).

STATUS

REGULATORY DRIVER: RCRA

RRSE: Low

CONTAMINANTS OF CONCERN:
Metals

MEDIA OF CONCERN: Soil

PHASES	Start	End
RFA.....	198803	198804
CS.....	199812	199901
RFI/CMS	199901	200308
LTM.....	200410	200509

RC DATE: 200308

SWMU 30 (FTC-045C)

BATTERY NEUTRALIZATION SHOP, BLDG 8142

SITE DESCRIPTION

A total of three Battery Shops exist as SWMUs at Fort Carson: SWMU 28/FTC-045B – Building 8000, SWMU 29/FTC-045A – Building 8030, and SWMU 30/FTC-045C – Building 8142.

The shop at Building 8142 (SWMU 30) operated from 1978 to August 1990. Electrolytes from batteries were discharged into a floor drain. The drain leads to a holding/neutralization tank where the electrolyte was neutralized with sodium bicarbonate before being discharged to the sewer system. In 1993, the area around the floor drain was excavated to repair the drain. However it was not possible to repair the drain, and the floor drain was permanently sealed with concrete and the piping was removed. Present operations include storage of batteries.

The soil samples collected in 1999 contained inorganics above background but below regulatory levels. Some organic compounds were also detected in soil samples at low concentrations. Chlorinated VOCs were detected at concentrations below groundwater standards in the wells.

The RFI report (for all three SWMUs) was submitted to CDPHE in 2001 and approved in 2002. No CMS was imposed.

CLEANUP STRATEGY

FUNDED: Perform a risk evaluation with NFA Request (funded in FY02 and FY05).

STATUS

REGULATORY DRIVER: RCRA

RRSE: Low

CONTAMINANTS OF CONCERN:
Metals

MEDIA OF CONCERN: Soil,
Groundwater

Phases	Start	End
RFA.....	198803	198804
CS.....	199812	199901
RFI/CMS	199901	200409
LTM.....	200410	200509

RC DATE: 200409

SWMU 36 (FTC-075) OLD CENTRAL WASH RACK

SITE DESCRIPTION

The Old Central Wash Rack (SWMU 36) is located just south of the New Central Wash Rack (FTC-074) along Clover Ditch. The site was operated from approximately 1980 to 1989. It discharged wastewater to the Industrial Wastewater Treatment Facility. The wash rack equipment was removed and the sumps were filled with concrete when the New Central Wash Rack was constructed in 1989.

Two temporary wells were installed during the voluntary investigation, and metals were detected at concentrations below regulatory standards.

This site has been identified as a Supplemental Environmental Project (SEP) under the 1997 Order on Consent. A RFI work plan was submitted in 1996; however, it was never implemented.

A RFI Report was submitted to CDPHE in February 2004, based on historical documents, limited site operations, and groundwater samples from the temporary wells installed adjacent to the site. Following review of the RFI Report, CDPHE requested a work plan to perform fieldwork.

The Supplemental RFI Work Plan was submitted to CDPHE in November 2005. Upon approval, additional fieldwork will be conducted to complete the RFI.

CLEANUP STRATEGY

FUNDED: Perform fieldwork to complete RFI and submit RFI Report (funded in FY03).

CTC ASSUMPTIONS: An NFA petition will be prepared.

STATUS

REGULATORY DRIVER: RCRA

RRSE: Low

CONTAMINANTS OF CONCERN:
Metals, VOCs

MEDIA OF CONCERN:
Soil, Groundwater

PHASES	Start	End
RFA.....	199401	199403
CS.....	199801	199812
RFI/CMS	200310	200710
LTM.....	200710	200810

RC DATE: 200710

SWMU 45 (FTC-017)

RANGE 1, OPEN BURN GROUNDS (PAGE 1 OF 2)

SITE DESCRIPTION

The Open Burn Grounds at Range 1 (SWMU 45) consisted of two crossing trenches, 100 feet long and 1 to 2 feet deep and a concrete pad. The site is located near the intersection of Butts Road and Specker Avenue. Excess propellant was burned at this location from 1963 to 1996. In December 1994, a concrete basin was installed to replace the earthen trenches. In October 1996, Fort Carson began use of the new concrete basin, allowing SWMU 45 to become inactive.

In 1985, a team from the U.S. Army Environmental Hygiene Agency took 22 surface and subsurface soil samples. Explosives were detected in the surface soil, but not in the subsurface soil. Groundwater samples collected between 1985 and 1997 did not detect explosive compounds except for one well in 1988.

Explosive compounds were not detected in soil or groundwater during an investigation in 1999; however, inorganics (primarily **nitrate**) were detected above CGWS. Results of the 1999 investigation were reported in an RFI report (May 1999).

In 2001, the contents of the concrete basin were removed (water and sand), and in April 2002, additional wells were installed to address CDPHE comments to the RFI report. Elevated levels of nitrates were detected above MCLs in the groundwater. In May 2002, the concrete basin was demolished and soil samples were collected. Low concentrations of nitrates and one detection of PETN (explosive compound) were detected in the soil samples.

In 2004, additional field activities included collecting additional samples beneath the former concrete basin and installing both upgradient and downgradient groundwater monitoring wells. The installation of additional monitoring wells to further define the nature and extent of elevated concentrations of nitrate in groundwater and potential source(s) is on hold pending completion of the installation-wide nitrate evaluation.

In 2005, this SWMU was identified for construction under the FY06 BRAC Program. Therefore, in cooperation with CDPHE in an effort to facilitate future construction activities, the RFI Report for the soil data only was submitted to CDPHE in February 2006. Annual groundwater monitoring is currently being performed.

STATUS

REGULATORY DRIVER: RCRA

RRSE: Medium

CONTAMINANTS OF CONCERN:
Explosives, Inorganics

MEDIA OF CONCERN:
Groundwater

Phases	Start	End
RFA.....	198210	198301
CS.....	199801	199909
RFI/CMS	199805	200710
LTM.....	200710	200810

RC DATE: 200710

SWMU 45 (FTC-017)

RANGE 1, OPEN BURN GROUNDS (PAGE 2 OF 2)

CLEANUP STRATEGY

FUNDED: Perform risk evaluation for soil, per CDPHE direction, including the collection of additional soil samples. (Funded in FY06).

CTC ASSUMPTIONS: Prepare a permit modification.

SWMU 50 (FTC-024)

DRMO, INACTIVE HAZ WASTE STORAGE AREA

SITE DESCRIPTION

This storage area (SWMU 50) operated from 1958 to 1983 and is located in the Cantonment near the newly constructed Building 320. Activities here included open area storage of hazardous waste products including: epoxies, hydraulic fluids, dried paint wastes, asbestos, PCBs and flammables. Two, 30 x 20 feet protective shelters were used as the storage facility. The site covers ~1 acre and is located north of Landfill 4 (FTC-008/SWMU 4).

There are four groundwater monitoring wells surrounding this site. These wells were installed to monitor the impacts of the groundwater as the result of Landfill 4 operations. There have been no contaminants detected in the groundwater that can be associated with this site. Low levels (below regulatory levels) of PCB have been detected in shallow soils at the north end of this site.

In June 2001, the RFI report was approved by CDPHE and no CMS was imposed.

CLEANUP STRATEGY

FUNDED: Perform a risk evaluation with NFA request (funded in FY02).

STATUS

REGULATORY DRIVER: RCRA

RRSE: Low

CONTAMINANTS OF CONCERN:
Inorganics

MEDIA OF CONCERN:
Groundwater, soil

PHASES	Start	End
RFA.....	198210	198301
CS.....	199503	199811
RFI/CMS	199901	200409
LTM.....	200410	200509

RC: 200409

SWMU 51 (FTC-043)

DIO HAZARDOUS WASTE STORAGE AREA

SITE DESCRIPTION

The Directorate of Industrial Operations (DIO) site (SWMU 51) included three, 8 x10 foot concrete metals sheds with concrete floors located in the yard east of Bldg 301. Stoddard Type II waste solvents were stored in 55-gallon drums inside the sheds from 1951 to 1981. The buildings have been removed. The concrete pads were removed in 1999 along with a small amount of hydrocarbon-contaminated soil.

Additional soil samples were collected beneath and around the removed pad. Low levels of POL were detected in the surface soil samples and are likely associated with the asphalt.

Two temporary wells were installed during the RFI and low levels of VOCs and metals were detected. The site has been identified as a Supplemental Environmental Project (SEP) under the 1997 Order on Consent.

The RFI report was approved by CDPHE in December 2001 and a CMS was not imposed.

CLEANUP STRATEGY

FUNDED: Perform a risk evaluation with NFA request (funded in FY03).

STATUS

REGULATORY DRIVER: RCRA

RRSE: Low

CONTAMINANTS OF CONCERN:
POL

MEDIA OF CONCERN:
Groundwater

PHASES	Start	End
RFA.....	198210	198301
CS.....	199904	199909
RFI/CMS	200310	200409
LTM.....	200410	200509

RC DATE: 200409

SWMU 53 (FTC-033) FORMER WASTE OIL/SOLVENT USTs, BLDG 8000

(PAGE 1 OF 2)

SITE DESCRIPTION

From 1973 to 1984, Fort Carson stored used oil and solvents generated at the Building 8000 Maintenance Facility prior to disposal. This site (SWMU 53) consisted of two 25,600-gallon tanks and associated piping from Building 8000. The tanks were removed in June of 1991, but the piping was left in place. A pump-and-treat system was installed in 1993 and then turned off in 1998, since it was unsuccessful in reducing contaminant concentrations.

Investigations around the tank pit between 1990 and 1993 identified petroleum hydrocarbons and chlorinated VOCs. This site was identified in the 1987 Compliance Order. In February 1997, soil samples were collected from within the tank pit and were found to contain chlorinated VOCs (including TCE). Sampling in 1998 found hydrocarbon and chlorinated VOCs contamination in the tank pit and at the northern and southern manholes associated with the piping. TCE has been found above groundwater standards in the immediate vicinity of the tank pit and northern and southern manholes. The RFI Report was submitted to CDPHE in 2000.

Based on comments from CDPHE on the RFI Report, the fluids remaining in the manholes were removed, the manholes were decontaminated, and the piping was plugged inside Building 8000 in 2001. In addition, free product recovery commenced as an IRA, and additional investigation upgradient of the northern manholes was performed to determine the source of chlorinated solvent contamination.

Based on the results of the additional investigation in 2001, a work plan was submitted in February 2004 to further evaluate the groundwater conditions for the entire Building 8000 complex and determine if a relationship exists between this SWMU and neighboring SWMUs. Groundwater for the neighboring SWMUs located at the Bldg 8000 Complex will be addressed under this SWMU, including the Former Long-Term Hazardous Waste Storage Area (FTC-041/SWMU 54), the Former Vapor Degreaser (FTC-058/SWMU 16) and the Battery Neutralization Shop, Building 8000 (FTC-045B/SWMU 28). This work plan was approved by CDPHE in November 2004 and the fieldwork was performed in late 2005. Evaluation of the field data with CDPHE in February 2006 identified the need for another

STATUS

REGULATORY DRIVER: RCRA

RRSE: Medium

CONTAMINANTS OF CONCERN:
VOCs, Inorganics

MEDIA OF CONCERN: Soil,
Groundwater

PHASES	Start	End
RFA	198803	198804
CS	199703	199902
IRA	199105	200809
RFI/CMS.....	199902	200710
DES	200710	200809
CMI(C).....	200710	200809
CMI(O).....	200710	201009
LTM	201010	201409

RIP DATE: 200710

RC DATE: 201009

SWMU 53 (FTC-033) FORMER WASTE OIL/SOLVENT USTs, BLDG 8000

(PAGE 2 OF 2)

field event to complete nature and extent of contamination and the hydrogeologic conceptual site model. Annual groundwater monitoring is currently being performed.

CLEANUP STRATEGY

FUNDED: CMS work plan (funded FY05). Complete RFI field work and prepare report (funded in FY06). Continue annual groundwater monitoring (funded FY06).

CTC ASSUMPTIONS: Perform CMS field work and prepare the report. Remedy will include in-situ groundwater treatment and soil excavation. Perform annual groundwater monitoring.

SWMU 54 (FTC-041) FORMER LONG-TERM HAZ WASTE STORAGE AREA, BLDG 8000

SITE DESCRIPTION

This site (SWMU 54) is an open 50 square-foot concrete pad located in the northwest corner of the Building 8000 complex (the Consolidated Field Maintenance Shop). The pad has a central drain connected to the storm water line that emptied to B Ditch. The site reportedly was used for storage of various waste material including hydraulic fluid, transmission fluid, oil filters, paint, motor gasoline, and diesel fuel. Since 1986, the area has been used for storage of non-hazardous materials such as maintenance equipment, spare parts, and empty containers. Current site conditions indicate that the concrete pad is associated with parking and storage for the Building 8000 complex.

Elevated concentrations of lead were detected in soil samples and selenium in groundwater samples. Trace amounts of organic compounds were detected in both soil and groundwater samples.

Site reconnaissance and interviews with facility personnel have determined that no structures or additional concrete pad(s) were constructed at the site and conditions have not been altered since the area was originally used. Historical research was conducted in 1995 in preparation for an RFI Work Plan (1996).

The RFI investigation was conducted in August 2003 and the report submitted to CDPHE in March 2004. The RFI was approved in November 2004 and a CMS was not imposed.

CLEANUP STRATEGY

FUNDED: Perform a risk evaluation with an NFA Request (funded in FY03).

STATUS

REGULATORY DRIVER: RCRA

RRSE: Low

CONTAMINANTS OF CONCERN:
Metals

MEDIA OF CONCERN: Soil,
Groundwater

Phases	Start	End
RFA.....	198210	198301
CS.....	199706	199901
RFI/CMS	200107	200509
LTM.....200510.. 200710

RC DATE: 200509

SWMU 55-111 (FTC-023)

USED/WASTE OIL TANKS (PAGE 1 OF 5)

SITE DESCRIPTION

This FTC # consists of 57 used oil storage tank sites (SWMU 55-111). All of these tanks have been removed. Soil confirmation samples, taken prior to removal, were only analyzed for BTEX and total hydrocarbons. Thirteen of these sites were recommended to CDPHE for no further action, since the tanks were actually small ASTs that cannot be located.

The initial RFI was conducted in 2 phases, one for 11 sites and one for 33 sites. A Phase I RFI is being completed at all 44 sites. Elevated levels of hydrocarbon, chlorinated VOCs, and PAHs were detected. In 2001, the 11 Site RFI was submitted to CDPHE and additional field activities were conducted to address comments. In 2002, CDPHE requested that RFI reports for all 44 sites be submitted independently.

NFA at 13 former AST sites has been approved and was implemented into the Part B Permit in October 2003.

In 2005, SWMUs 67, 72, 74 and 75 were identified for construction under the FY06 BRAC program.

CLEANUP STRATEGY

See detailed status chart below.

CTC ASSUMPTIONS: Complete RFI/CMS and NFA petition preparations.

STATUS

REGULATORY DRIVER: RCRA

RRSE: Medium

CONTAMINANTS OF CONCERN:
VOC's, SVOC's, Metals

MEDIA OF CONCERN: Soil,
Groundwater

Phase	Start	End
RFA.....	198210	198301
CS.....	199811	199904
RFI/CMS	199811	200910
IRA.....	200010	200306

RC DATE: 200910

SWMU 55-111 (FTC-023)

USED/WASTE OIL TANKS (PAGE 2 OF 5)

PROJECTED COSTS TO COMPLETE
Used/Waste Oil Tanks (FTC-023/SWMUs 55-111)
Status of FTC-023 sites as of May 28, 2006

SWMU	Bldg #	Task	Funded?	Fiscal Year	Funding Priority	Anticipated Completion Date
55	523	RFI Report	yes	FY04	--	FY06
		NFA Request	no	--	Low	FY07
56	301	RFI Report	yes	FY05	--	FY06
		NFA Request	no	--	Low	FY07
57	635	NFA Request	yes	FY06	--	FY06
58	218	NFA Request	yes	FY06	--	FY06
59	1302	NFA Request	yes	FY06	--	FY07
60	1382	RFI Report	yes	FY05	--	FY06
		NFA Request	no	--	Low	FY07
61	1515	NFA Request	yes	FY06	--	FY07
62	1682	RFI Report	yes	FY05	--	FY06
		NFA Request	no	--	Low	FY07
63	1692	RFI Report	yes	FY06	--	FY06
		NFA Request	no	--	Low	FY07
64	1882	NFA Request	yes	FY06	--	FY06
65	1982	NFA Request	yes	FY06	--	FY07
66	2082	NFA Request	yes	FY06	--	FY07
67 (BRAC)	2239	NFA Request	yes	FY06	--	FY06
68	2392	NFA Request	no	--	Low	FY07
69	2434					

						FY06
		NFA Request	no	--	Low	FY07
70	2492	NFA Request	yes	FY06	--	FY07
71	2692	NFA Request	yes	FY06	--	FY07
72 (BRAC)	2735	Finalize RFI Report	yes	FY06	--	FY06
		NFA Request	yes	FY06	--	FY06
73	2792	Fieldwork	yes	FY06	--	FY06
		RFI Report	yes	FY05	--	FY06
		NFA Request	no	--	Low	FY07
74 (BRAC)	2840	RFI Report	yes	FY06	--	FY06
		NFA Request	yes	FY06	--	FY06
75 (BRAC)	2940	Presumptive Remedy WP	yes	FY06	--	FY06
		Presumptive Remedy	yes	FY06	--	FY06
		Remedy Completion Report	yes	FY06	--	FY06
76	2992	RFI Report	yes	FY05	--	FY06
		NFA Request	no	--	Low	FY07
77	3092	Fieldwork	yes	FY06	--	FY06
		RFI Report	yes	FY06	--	FY06
		NFA Request	no	--	Low	FY07
78	3192	Fieldwork	yes	FY06	--	FY06
		RFI Report	no	--	High	FY07
		NFA Request	no	--	Low	FY07
79	3292	Fieldwork	yes	FY06	--	FY06
		RFI Report	yes	FY06	--	FY06
		NFA Request	no	--	Low	FY07
80	3874	RFI Report	yes	FY04	--	FY06
		NFA Request	no	--	Low	FY07
81	8142	NFA	yes	FY06	--	FY06

		Request				
82	8152	RFI Report	yes	FY05	--	FY06
		NFA				
		Request	no	--	Low	FY07
83	8200	NFA				
		Request	yes	FY06	--	FY06
84	8300	Presumptive				
		Remedy	yes	FY06		FY06
		Remedy				
		Completion				
		Report	no	--	High	FY07
85	8930	NFA				
		Request	yes	FY06	--	FY06
86	9072	Fieldwork	yes	FY06	--	FY06
		RFI Report	yes	FY06	--	FY06
		NFA				
		Request	no	--	Low	FY07
87	9603	Fieldwork	yes	FY06	--	FY06
		RFI Report	no	--	High	FY07
		NFA				
		Request	no	--	Low	FY07
88	9606	Fieldwork	yes	FY06	--	FY06
		RFI Report	no	--	High	FY07
		NFA				
		Request	no	--	Low	FY07
89	9609	RFI Report	yes	FY06	--	FY06
		NFA				
		Request	no	--	Low	FY07
90	9620	NFA				
		Request	yes	FY06	--	FY06
91	9628	NFA				
		Request	yes	FY06	--	FY06
92	MPRC	RFI Report	yes	FY05	--	FY06
		NFA				
		Request	no	--	Low	FY07
96	1404	NFA				
		Request	yes	FY06	--	FY07
107	639	RFI Report	yes	FY05	-	FY06
		NFA				
		Request	no	--	Low	FY07
108	749	RFI Work				
		Plan	yes	FY06	--	FY06
		Fieldwork	yes	FY06	--	FY06
		RFI Report	no	--	High	FY07
		NFA	no	--	Low	FY07

		Request				
109	1392	Fieldwork	yes	FY06	--	FY06
		RFI Report	no	--	High	FY07
		NFA Request	no	--	Low	FY07
110	2427	NFA Request	yes	FY06	--	FY06
111	8110	NFA Request	yes	FY06	--	FY07

SWMU 164 (FTC-070)

UNDERGROUND STORAGE TANK NEAR BLDG 202

SITE DESCRIPTION

The Paint Shop used this tank (SMWU 164) to hold paintbrush-cleaning chemicals. The building was removed in the late 1990s and the tank was removed in 1994. This site is now part of a vehicle parking lot.

Contents of the UST were determined to be POL products prior to removal. The excavation of contaminated soil was stopped after a chlorinated solvent was detected in one sample. Sampling in 1996-97 did not encounter chlorinated solvents in soil or groundwater and POL concentrations were below regulatory limits. Bis(2-ethylhexyl)phthalate was detected above Colorado groundwater standards in 2002.

The RFI Report was submitted to CDPHE in January 2003. Based on their review, the CDPHE requested the installation of additional groundwater wells to assess the nature and extent of elevated concentrations of bis(2-ethylhexyl)phthalate detected in groundwater.

The work plan to perform the additional work was submitted to CDPHE in August 2004, approved in September 2004 and implemented in November 2004. In March 2005, the Colorado groundwater standard was revised eliminating bis(2-thylhexyl)phthalate as a contaminant of concern.

Two additional permanent groundwater monitoring wells were installed north and east of the former tank excavation in 2004 and PCE has been identified as a new contaminant of concern in groundwater. Additional RFI activities need to be conducted to identify the nature and extent of PCE.

CLEANUP STRATEGY

FUNDED: Prepare Supplemental RFI Work Plan, perform additional fieldwork and revise RFI Report (funded in FY06).

CTC ASSUMPTIONS: Prepare CMS (FY07). Anticipated remedy is in-situ treatment. Perform groundwater monitoring.

STATUS

REGULATORY DRIVER: RCRA

RRSE: Low

CONTAMINANTS OF CONCERN:
VOCs, SVOCs, Metals

MEDIA OF CONCERN:
Groundwater, Soil

Phases	Start	End
RFA	198801	198803
CS.....	199610	199912
RFI/CMS	200010	200710
DES.....	200710	200810
CMI(C)	200810	200910
CMI(O).....	200810.....	201110
LTM	201110	201610

RIP DATE: 200810

RC DATE: 201110

SWMU 167 (FTC-083)

NORTH SPECKER AVENUE PLUMES (PAGE 1 OF 2)

SITE DESCRIPTION

This site (SWMU 167) was identified following sampling conducted in conjunction with the UST removals at Building 749 (FTC-060) that detected PCE and TCE in groundwater. Additional investigations performed along North Specker Avenue between 1994 and 2002 located a source area and defined the nature and extent of contamination. Benzene, bis(2-ethylhexyl)phthalate, chloroform, 1,1-dichloroethene, ethylbenzene, tetrachloroethene (PCE), trichloroethene (TCE), methylene chloride, pentachlorophenol, and vinyl chloride have been detected in groundwater at concentrations exceeding Colorado Ground Water Standards. Four of the analytes (benzene, 1,1-dichloroethene, PCE, and TCE) have been detected consistently over the course of the investigation and have a wide spatial distribution. PCE forms a plume that averages approximately 450 feet wide and 3,900 feet long. The source of the plume begins in the vicinity of Buildings 633 through 636 and is attributed to several underground utilities and former in-line sand and grease traps that traversed the area.

The NFA approval for the USTs at Bldg 749 (FTC-060, an OPS site) is contingent on this plume being remediated.

In 2001, a pilot SVE/AS system was installed in the source area as an interim remedial action, and four abandoned sand and grease traps with impacted soils were removed from the source area. The Draft Final RFI Report was submitted to CDPHE in September 2002. The RFI Report was conditionally approved pending an indoor air assessment of occupied buildings overlying the chlorinated VOC plume and a CMS was imposed.

Based on the collective indoor air results, (October 2003, May 2004 and May 2005) no conclusive determination can be made as to whether the concentrations of TCE are attributable to the plume, background contaminants, or a combination of both. However, all concentrations are either below or within typical background values and do not warrant further study or remediation, per the CDPHE Interim Policy Guidance. Fort Carson has implemented an administrative control (permitting the basement as a confined space) to ensure atmospheric monitoring is performed prior to and during entry to the Building 1044

STATUS

REGULATORY DRIVER: RCRA

RRSE: Medium

CONTAMINANTS OF CONCERN:
POL, TCE, PCE

MEDIA OF CONCERN:
Groundwater

Phases	Start	End
RFA.....	199703	199705
CS.....	199703	199705
RFI/CMS	199705	200610
IRA.....	200103	200509
DES	200610	200809
CMI(C)	200710	200809
CMI(O).....	200710.....	201009
LTM.....	201010	202010

RIP DATE: 200710

RC DATE: 201009

SWMU 167 (FTC-083)

NORTH SPECKER AVENUE PLUMES (PAGE 2 OF 2)

basements. No immediate threat to human health has been identified. Therefore, no further sampling or evaluation of indoor air is warranted.

During the supplemental indoor air sampling events, water was observed in the basement sumps in barracks Buildings 1042, 1043, 1044, 1046 and 1047. The sumps and an associated French drain system were installed at the time the barracks were constructed (circa 1960s) and were designed to control potential groundwater infiltration, which was then discharged to the Fort Carson storm water utility system and ultimately to I-ditch. The Building 1044 sumps were sampled in May 2005, CDPHE performed a site inspection and collected sump water samples (with DECAM splits) from Buildings 1042, 1043, 1044, 1046, and 1047 in June 2005, and additional sampling was performed in September and November 2005 to further evaluate water quality and to attempt to determine the source(s) of the water (groundwater, potable water or a mixture of both). Results of the sump samples indicated the presence of chlorinated VOCs and trihalomethanes (THMs) below the CGWS, which implies that the Fort Carson's water supply is the likely source of the THMs with some contribution from groundwater. Potential influences to groundwater from Fort Carson's water supply are being evaluated to determine possible effects on future groundwater remedial planning. Because the sump water discharges to I-Ditch, Fort Carson applied for a NPDES permit in early 2006 to address the surface discharge of water. Resolution of this permit application is pending.

In August 2005, CDPHE issued a Compliance Advisory to Fort Carson related to the North Specker plume. The Compliance Advisory provided a Listed Hazardous Waste Determination for wastes at the SWMU and cited two "potential violations" related to hazardous waste determination and disposal based on CDPHE's belief that PCE and TCE detected in groundwater and purge water were generated from past operations. In response to the Compliance Advisory, Fort Carson provided documentation and a written determination of whether groundwater and purge water at North Specker meet the CDPHE and EPA criteria for identification and management as listed hazardous wastes. Fort Carson determined that North Specker is not a listed hazardous waste source. The Compliance Advisory is pending resolution.

The AS/SVE system was decommissioned in September 2005 and the CMS Work Plan for the North Specker contaminant plume was submitted to CDPHE in March 2006. Annual groundwater monitoring is currently being performed.

CLEANUP STRATEGY

FUNDED: Finalize RFI Report Addendum with additional indoor air data collected in May 2005. Perform CMS (funded in FY03 and FY06).

CTC ASSUMPTIONS: Implementation of selected remedy (FY08). Anticipated remedy is in-situ treatment. Continue annual groundwater monitoring.

SWMU 168 (FTC-093)

FORMER POW CAMP (PAGE 1 OF 2)

SITE DESCRIPTION

The Former Prisoner of War Camp area (SWMU 168) was not identified by Fort Carson or CDPHE as an area of environmental concern and was not included in the initial Part B Permit. The site was discovered during construction activities in 2000. In late July 2000, construction activities uncovered an orange-red substance from the underlying soil near the intersection of Mabry Court and Funk Avenue on the west side. These soils were located on the edge of what had at one time been a prisoner of war camp.

Analysis of the stained soils detected pentachlorophenol. Due to the potential of delaying the contractor that was doing the utility installation, the decision was made to excavate the impacted soil (~75cy) with off-site disposal.

Following excavation, confirmatory samples detected low levels of PCP at the bottom of the excavation (greater than 20 ft bgs). Soil was excavated to bedrock. Groundwater was not encountered during excavation activities. The site was backfilled and a road was built over the site.

A Draft Final RFI report was submitted to CDPHE in Jan 2002. Based on comments, additional site investigations were performed in June 2004 to further evaluate the nature and extent of PCP. Results of the additional fieldwork further defined the location of the former excavation and identified 2,4-dinitrotoluene and n-nitroso-di-n-propylamine at concentrations above screening criteria in a soil sample collected outside of the former excavation. As a result, another work plan was previously submitted to further define the nature and extent of the PCP and the newly identified contaminants. The work plan was approved in May 2005 and fieldwork was performed in July 2005. All pentachlorophenol, n-nitroso-di-n-propylamine, and 2,4-dinitrotoluene soil results were non-detect. However, groundwater encountered and sampled from a boring advanced within the former excavation detected pentachlorophenol above the Colorado groundwater standard.

Several phases of investigation fieldwork have occurred at the site and the current conceptual site model is one of a "bathtub" excavated into the shallow bedrock. While contaminated water was encountered within the former excavation, no groundwater has been encountered in borings advanced outside the excavation to the south and southeast. In addition, a soil sample will also be collected from the location of a sample collected after

STATUS

REGULATORY DRIVER: RCRA

RRSE: Low

CONTAMINANTS OF CONCERN:
Explosives, PCP

MEDIA OF CONCERN: Soil

PHASES	Start	End
RFA.....	200009	200011
CS.....	200009	200011
RFI/CMS	200011	200710
DES	200710	200810
CMI(C)	200810	200910
LTM.....	200910	201010

RC DATE: 200910

SWMU 168 (FTC-093)

FORMER POW CAMP (PAGE 2 OF 2)

excavation in 2000 that exceeds the groundwater protection limit for PCP. Based on the results of the additional fieldwork, a CMS may not be required. The Supplemental Letter Work Plan was submitted to CDPHE in January 2006 and approved in February 2006. Fieldwork was performed in April 2006.

CLEANUP STRATEGY

FUNDED: Finalize RFI. (funded in FY06)

CTC ASSUMPTIONS: Perform CMS (FY07). Implement selected remedy (anticipated to include soil excavation).

IRP No Further Action Sites Summary

AEDB-R #	Alias	Site Title	Documentation/Reason for NFA	NFA Date
FTC-005	SWMU 1	Landfill 1	This is an OMA site and is carried in AEDB-CC.	199901
FTC-010	SWMU 6	Landfill 6 (1942-1946)	This is an OMA site and is carried in AEDB-CC.	200001
FTC-014	SWMU 10	Landfill 10	NFA in Part B Permit, no investigation was required.	200008
FTC-015	SWMU 11	Landfill 11	This is an OMA site and is carried in AEDB-CC.	200509
FTC-016	SWMU 12	Landfill 12	NFA in Part B Permit, no investigation was required.	199710
FTC-018	SWMU 46	Range #1A Open Burn Grounds	NFA in Part B Permit based on investigation and risk assessment results.	200509
FTC-019	SWMU 47	Range 121, OD Grounds, Active Site	This is an OMA site and is carried in AEDB-CC.	199801
FTC-025	SWMU 49	H/W and PCB Storage Area (Active Site)	This is an OMA site and is carried in AEDB-CC.	199612
FTC-027	SWMU 48	Open Burn Grounds, Range 123	This is an OMA site and is carried in AEDB-CC.	200309
FTC-028	SWMU 44	Evans Army Hospital Silver Recovery Unit, Bldg. 6270	NFA in Part B Permit, no investigation was required.	198804
FTC-029	No SWMU	Old Army Hospital Incinerator	NFA in Part B Permit, no investigation was required.	198804
FTC-030	SWMU 20	Waste Oil Burner Building 1860	NFA in Part B Permit, no investigation was required.	198804
FTC-031	SWMU 21	Industrial Waste Water Plant (Active)	This is an OMA site and is carried in AEDB-CC.	199610
FTC-032	SWMU 34	Vehicle Wash Rack Drainages	NFA in Part B Permit based on investigation and risk assessment results.	200509
FTC-034	SWMU 33	Golf Course Spreading Area	This is an OMA site and is carried in AEDB-CC.	199610
FTC-035	SWMU 43	Old Hospital Silver Recovery Unit, Bldg. 6271	NFA in Part B Permit, no investigation was required.	198804

AEDB-R #	Alias	Site Title	Documentation/Reason for NFA	NFA Date
FTC-036	SWMU 32	Golf Course Sewage Holding Lagoon	This is an OMA site and is carried in AEDB-CC.	199610
FTC-037	SWMU 42	Photo Shop Silver Recovery Unit, Bldg. 6270	NFA in Part B Permit, no investigation was required.	198804
FTC-038	SWMU 41	Vet Clinic Silver Recovery Unit, Bldg. 6001	NFA in Part B Permit, no investigation was required.	199804
FTC-042	SWMU 22	Sewage Treatment Plant (Active)	This is an OMA site and is carried in AEDB-CC.	199704
FTC-045B	SWMU 28	Battery Acid Neutralization Bldg 8000	This is an OMA site and is carried in AEDB-CC.	199612
FTC-046	SWMU 37	Vet Clinic Incinerator	NFA in Part B Permit, no investigation was required.	198804
FTC-048	SWMU 31	Demolition Area	NFA in Part B Permit, limited investigation was required.	200401
FTC-049	SWMU 38	Commissary Incinerator	NFA in Part B Permit, no investigation was required.	198804
FTC-050	SWMU 39	Classified Document Incinerators, Bldg. 1430	NFA in Part B Permit, no investigation was required.	198804
FTC-051	No SWMU	Former UST Site, Bldg. 9648	This is an OMA site and is carried in AEDB-CC.	200001
FTC-052	No SWMU	Former UST Site, Bldg. 1092	Remedied site through soil excavation.	199301
FTC-053	No SWMU	Former UST Site, Bldg. 7500	Remedied site through tank excavation.	199005
FTC-054	No SWMU	Former UST Site, Bldg. 8000	This is an OMA site and is carried in AEDB-CC.	200002
FTC-055	No SWMU	Former UST Site, Bldg. 981	Remedied site through soil excavation.	200010
FTC-056	No SWMU	Former UST Site, Bldg. 1382	This is an OMA site and is carried in AEDB-CC.	200002
FTC-058	SWMU 17	Jet Spray Washers	NFA in Part B Permit, no investigation was required (however, SWMU 16 shares this AEDB-R # and it is currently in the CMS phase.)	NA
FTC-059	SWMU 21	Ind Waste Treat Plant Ponds (Active Sites)	This is an OMA site and is carried in AEDB-CC.	199612

AEDB-R #	Alias	Site Title	Documentation/Reason for NFA	NFA Date
FTC-060	No SWMU	Former UST Site, Bldg. 749	This is an OMA site and is carried in AEDB-CC.	200002
FTC-061	No SWMU	Former UST Site, Bldg. 1392	This is an OMA site and is carried in AEDB-CC.	200002
FTC-062	No SWMU	Former UST Site, Bldg. 2392	This is an OMA site and is carried in AEDB-CC.	200010
FTC-063	No SWMU	Former UST Site, Bldg. 2494	This is an OMA site and is carried in AEDB-CC.	200002
FTC-064	No SWMU	Former UST Site, Bldg. 2692	This is an OMA site and is carried in AEDB-CC.	200002
FTC-065	No SWMU	Former UST Site, Bldg. 2792	This is an OMA site and is carried in AEDB-CC.	200002
FTC-066	No SWMU	Former UST Site, Bldg. 3192	This is an OMA site and is carried in AEDB-CC.	200012
FTC-067	No SWMU	Former UST Site, Bldg. 8200	This is an OMA site and is carried in AEDB-CC.	200002
FTC-068	No SWMU	Former UST Site, Bldg. 8300	This is an OMA site and is carried in AEDB-CC.	200207
FTC-069	No SWMU	UST Site Pinon Canyon Maneuver Site	This is an OMA site and is carried in AEDB-CC.	200002
FTC-071	No SWMU	Former UST Site, Bldg. 1100	This is an OMA site and is carried in AEDB-CC.	199912
FTC-072	No SWMU	Former UST Site, Bldg. 700	This is an OMA site and is carried in AEDB-CC.	199912
FTC-073	SWMU 26	Equalization Basin, Bldg. 1399 (Active)	This is an OMA site and is carried in AEDB-CC.	199612
FTC-076	SWMU 163	Industrial Waste Water System	This is an OMA site and is carried in AEDB-CC.	199612
FTC-077	SWMU 165	Battery Neutralization Pit, Bldg. 8110	This is an OMA site and is carried in AEDB-CC.	199507
FTC-078	SWMU 166	Bldg. 8110 Wash Rack	This is an OMA site and is carried in AEDB-CC.	199612
FTC-081	No SWMU	Former UST Site, Bldg. 638	This is an OMA site and is carried in AEDB-CC.	199912
FTC-082	No SWMU	Former UST Site, Bldg. 2992	This is an OMA site and is carried in AEDB-CC.	199912
FTC-088	SWMU 169	Building 1211	This is an OMA site and is carried in AEDB-CC.	200105

Initiation of IRP: 1994

Past Phase Completion Milestones:

1995

- Fort Carson was issued a RCRA Part B Permit. This required the submission of 85 RFI work plans within a 180-day period. The immediate milestone then became the completion of that task. It was accomplished within the allowed time frame, Sep

1996

- The primary focus was to conduct several RFI investigations. Included in this was the Grit Oil Pit, which was included in an Order on Consent that was issued to Fort Carson.

1997

- The primary milestones at Fort Carson were to obtain state approval for landfill caps at 3 locations, as well as, the removal plan for sludges at the Equalization Basin (an active site).

1998

- The sludges were removed from the Equalization Basin and the basin liner was decontaminated.
- A temporary cover was installed as an interim surface water control measure at the Grit/Oil Pit (SWMU 13/FTC-020), Mar

1999

- A drainage channel was constructed down the municipal portion of Landfill 1 to replace a degraded culvert, Dec

2000

- a barrier cap, complete with an asphalt parking lot, was installed on the western 5 acres of Landfill 5, adjacent to Building 8930 (Motor Pool), Mar
- An evapotranspiration cap was placed over the eastern 15 acres of Landfill 5, Sep

2001

- Landfill 6 waste material was relocated, Mar

2002

- No further action was selected by the CDPHE for Landfill 10 (SWMU 10/FTC-014), Landfill 12 (SWMU 12/FTC-016), and the Jet Spray Washers (SWMU 17/FTC-058).

2004

- The CDPHE granted final approval of the Landfill 5 (SWMU 5/FTC-010) evapotranspiration cap, Nov
- The CDPHE acknowledged that Landfill 5 has not contributed to groundwater contamination above screening levels downgradient of the landfill. As a result, the SWMU has completed the remedy phase of corrective action and is only undergoing long-term management. In January 2005, no further action was selected by the CDPHE for the Range 1A, Open Burn Grounds (SWMU 46/FTC-018), Dec

2005

- The contaminated media from the Grit/Oil Pit (SWMU 13/FTC-020) was removed as an IRA, Jan
- Received NFA status for Range 1A (SWMU 46/FTC-018)
- Received approval of Risk Module VI.

2006

- Received approval of Risk Module V, to include Tiers I, II, and III.

Projected Record of Decision (ROD)/Decision Document (DD) Approval Dates: N/A

Projected Construction Completion Date of IRP: 2011

Schedule for Next Five-Year Review: N/A

Estimated Completion Date of IRP (including LTM phase): 2041

Fort Carson IRP Schedule Chart

AEDB-R #	PHASE	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15+
SWMU 2, FTC-006	RFI/CMS									
	DES									
	CMI(C)									
	LTM									204110
SWMU 4, FTC-008	LTM									203410
SWMU 5, FTC-009	LTM									203010
SWMU 7, FTC-011	DES									
	CMI(C)									
	LTM									203710
SWMU 8, FTC-012	DES									
	CMI(C)									
	LTM									203810
SWMU 9, FTC-013	DES									
	CMI(C)									
	LTM									203810
SWMU 13, FTC-020	DES									
	CMI(C)									
	CMI(O)									
	LTM									201510
SWMU 14, FTC-026	DES									
	CMI(C)									
	LTM									203710
SWMU 16, FTC-058	LTM									
SWMU 24, FTC-021/ 022	DES									
	CMI(C)									
	CMI(O)									
	LTM									201510
SWMU 36, FTC-075	LTM									
SWMU 45, FTC-017	LTM									

Fort Carson IRP Schedule Chart

AEDB-R #	PHASE	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15+
SWMU 53, FTC-033	RFI/CMS									
	DES									
	CMI(C)									
	CMI(O)									
	LTM									
SWMU 55- 111, FTC- 023	RFI/CMS									
SWMU 164, FTC-070	RFI/CMS									
	DES									
	CMI(C)									
	CMI(O)									
	LTM									201610
SWMU 167, FTC-083	DES									
	CMI(C)									
	CMI(O)									
	LTM									202010
SWMU 168, FTC-093	RFI/CMS									
	DES									
	CMI(C)									
	LTM									

Prior Years Funds

Total Funding up to FY04: \$40,500K (from Annual Report to Congress)

Year	Information	Expenditures	FY Total
FY05			\$1,409K
Total Prior Year Funds : \$41,909K			

Current Year Requirements

Year	Site Information	Expenditures	FY Total
FY06	RI/FS – FTC-006	\$38K	
	LTM – FTC-008	\$589K	
	LTM – FTC-009	\$112K	
	RI/FS – FTC-011	\$28K	
	RI/FS – FTC-013	\$113K	
	RI/FS – FTC-017	\$163K	
	RD – FTC-021	\$1K	
	RI/FS – FTC-021	\$248K	
	RI/FS – FTC-023	\$1,152K	
	RI/FS – FTC-026	\$28K	
	LTM – FTC-032	\$25K	
	RI/FS – FTC-033	\$100K	
	LTM – FTC-047	\$36K	
	RI/FS – FTC-070	\$82K	
	RD – FTC-083	\$1K	
	RI/FS – FTC-083	\$215K	
	RI/FS – FTC-093	\$126K	
	RAB/TAPP	\$23K	\$3,080K

Total Future Requirements (CTC): \$27,193K

Total IR Program Cost (from inception to completion of the IRP): \$72,182K

Community Involvement

In 1994, Fort Carson was in the process of voluntarily forming a Restoration Advisory Board when a local environmental organization petitioned the installation to form one. Initially, community involvement in the RAB was high, but has since declined. Information given to the public has increased the trust level of the community and RAB members.

Fort Carson's RAB was established in 1994 to inform interested citizens about Fort Carson's environmental restoration activities, and for representatives of the surrounding communities to provide input to Fort Carson for consideration in the environmental restoration decision making process. It is a citizen-based advisory group of over 200 members that provides the installation input for community decision-making that will be responsive to community needs and concerns. The RAB is also charged with distributing information about environmental restoration to the communities it represents.

Progress reports on corrective action processes provided to the RAB are key factors in promoting informed and valuable reviews and comments from this group. Public meetings are held, as appropriate or required, in order to provide additional forums for community input and may be held in conjunction with RAB Meetings. The community co-chair or a RAB member is invited to attend Fort Carson's annual IAP Meeting and provides input regarding the community's environmental restoration priorities.

In December 1998, additional input was solicited from neighborhoods adjacent to Fort Carson and a Community Involvement Plan was generated.

RAB meetings are currently held on a quarterly basis.